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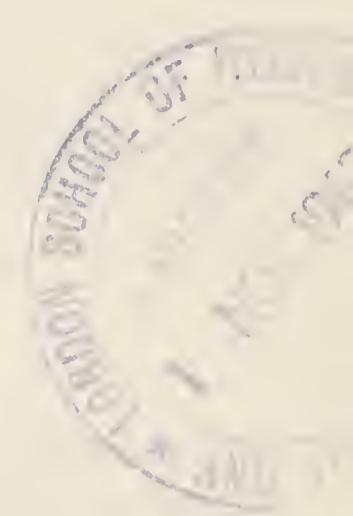
SARAWAK

MEDICAL AND HEALTH DEPARTMENT

ANNUAL REPORT

1961

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Medical and Health Department,
Kuching,
Sarawak,
Borneo.

15th May, 1962.

Sir,

I have the honour to submit for the information of His Excellency the Governor, and for transmission to the Right Honourable the Secretary of State, the Annual Report for 1961, of the Medical and Health Department of Sarawak.

I have the honour to be,
Sir,
Your Obedient Servant,

D. A. BAIRD,
Director of Medical Services

THE HONOURABLE THE CHIEF SECRETARY,
KUCHING.

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MEDICAL AND HEALTH DEPARTMENT

ANNUAL REPORT 1961

I. BACKGROUND INFORMATION

Sarawak occupies an area of about 47,500 square miles on the northwest coast of the island of Borneo. It lies between latitude $0^{\circ} 50'$ and 5° North, and longitudes $109^{\circ} 36'$ and $115^{\circ} 40'$ East and the territory occupies slightly less than a sixth of the island, which is the third largest in the world.

2. The climate is tropical, with a heavy rainfall, a uniform temperature and a high humidity. From early October until the middle of February, the north-east monsoon brings heavy rainfall, especially in the coastal belt. The rainfall averages between 150 and 180 inches in most areas, and the mean annual rainfall at Kuching is 158 inches. There is, however, normally a daily mean of three to seven hours of sunshine, depending on the season. On the whole, the climate is a pleasant and equable one, in spite of the tropical situation of the country. It is never cold, and although it can get fairly hot in the day-time, the heat is never oppressive and the nights are generally cool. The temperature is uniform, varying between the mean maximum of 87.9°F and a mean minimum temperature of 72.5°F in 1959.

3. The total population at the census held in June, 1960 was 744,529. This showed an increase of 198,144 over the figure obtained at the previous census in 1947, i.e. an average annual increase of 15,242, during the thirteen years. Of the total population, 375,846 were males, and 368,683 females. Sea Dayaks, with a population of 237,741, still form the largest single racial group, followed by the Chinese with 229,154, the Malays with 129,300, the Land Dayaks with 57,619 and the Melanaus with 44,661. Other indigenous races, totalled 37,931 and there were 1,631 Europeans. Since 1947, there has been a percentage increase of 57.9 in the case of the Chinese population, compared with a percentage increase of only 24.9 for the Sea Dayaks, 36.6 for Land Dayaks, 32.7 for Malays and 25.6 for Melanaus.

4. Malays, Kedayans and many Melanaus profess the Muslim faith. There are a number of Christian Missions at work in Sarawak—Anglican, Roman Catholic, Methodist, Evangelical and Seventh Day Adventist. There are also small communities of Hindus, Buddhists and Bahais. The 1960 census revealed that there were 174,123 persons professing the Muslim faith, 117,755 professing Christians and 452,651 of other religious beliefs.

5. Sarawak is divided into five Divisions for administrative purposes and each Division is in turn divided into Districts, under the charge of a District Officer. The 1960 census showed that the population of the five Divisions was as follows:—

First Division	247,954
Second Division	109,422
Third Division	261,487
Fourth Division	96,666
Fifth Division	29,000

The control of local affairs is largely in the hands of elected District Councils, which in turn nominate representatives to the Divisional Advisory Council, under the chairmanship of the Resident. Divisional Councils nominate members to sit on the Legislative Body, called Council Negri, and this body in turn elects members to Supreme Council over which the Governor presides. The capital of Sarawak is Kuching, which is also the administrative headquarters of the First Division. Headquarters of the Second, Third, Fourth and Fifth Divisions are Simanggang, Sibu, Miri and Limbang, respectively.

6. Of the total estimated area of 47,500 square miles about three-quarters is still covered by primary rain forest, and the remainder is mainly used for settled and shifting cultivation (six per cent and eighteen per cent respectively). Although Sarawak is basically an agricultural country, the soil is generally poor and shallow, some being extremely acid in reaction, and over much of the accessible part of the country the inherent poverty of the soil has been accentuated by wasteful practices associated with the cultivation of dry padi. The shifting cultivation of hill padi, normally practised, results in reduced fertility unless the ground is allowed to be fallow for fifteen years or so, after each crop.

7. The main cash crops are rubber, pepper, sago and coconuts, and a considerable proportion of the general revenue of Sarawak is derived from the export duty levied on rubber and pepper. There are also large and important forest reserves, and timber production ranks after agriculture as the most important economic activity carried on in Sarawak. The principal minerals known to occur in Sarawak are bauxite, now the main mineral export, oil which has been produced from the Miri oilfields for fifty-one years, but is now decreasing in quantity, gold in small quantities, and coal. The last named is known to occur in payable quantities, but so far, lack of communications has discouraged exploitation. The new road from Kuching to Simanggang passes within reasonable distance of one known field, and this may encourage its development.

8. The staple diet of the population is rice, but the actual production of wet padi in Sarawak is inadequate for its needs, and approximately half of the country's requirements are imported, mainly from Siam. Other food crops such as tapioca, maize, yams and sweet potatoes are used in rural areas, to supplement rice. A noticeable feature of the agricultural economy is the small number of livestock, and the almost entire absence of mixed farming. The few small herds of cattle which exist are mainly confined to the sandy coastal area, though buffaloes are reasonably plentiful in the Fifth Division. The only classes of livestock kept in significant numbers are pigs and poultry.

9. Sarawak is a relatively healthy country by tropical standards. Bilharziasis, yellow fever, typhus, plague and relapsing fever are not encountered, nor has there been a case of smallpox for many years. The same could have been said about cholera, but for the outbreak of "El Tor" para-cholera, which occurred during 1961. Due to the poor standard of environment sanitation, however, dysentery and the enteric diseases continued to occur in distressingly large numbers. Leprosy is prevalent also, and endemic goitre occurs in the interior.

10. The policy of the Government in the field of public health, as enunciated in 1960, is as follows:—

"Believing that good health is one of the most important assets of any community, it is the policy of Government to promote the health of all the people of Sarawak in so far as its financial resources will permit. This will be achieved by:

- (a) *protecting* the community against the common communicable diseases, by free protective vaccination and inoculation, and by such other methods as may be available from time to time;
- (b) *educating* the public in matters concerning the preservation of health and the avoidance of disease;
- (c) *encouraging* the establishment of maternal and child health services as a means of maintaining the health of mothers and children;
- (d) *advising* district councils in their effort to improve the sanitary and living conditions of the people;
- (e) *maintaining* hospital and dispensary services for the effective treatment of the sick and injured;
- (f) *providing* a dental service complementary to the private practitioner service, with particular emphasis on the care of children.”

11. More and more emphasis is being placed, each year, on the preventive aspects of the work of the department. Mass health campaigns, such as the Malaria Eradication project, the Tuberculosis control scheme, and the campaign against yaws, which was successfully completed in 1956, are already having a marked effect on the general health of the population.

12. In the field of curative medicine, hospital and dispensary facilities throughout the country have steadily improved over the past five years. There are now four main general hospitals, situated at Kuching, Sibu, Simanggang and Miri, and a small divisional hospital was opened at Limbang in the Fifth Division during the year. A district hospital at Sarikei in the Third Division is nearing completion and will be opened early in 1962. In addition to these Government institutions, there is a forty-six bedded hospital run by the Methodist Mission, at Kapit, and there are other small mission hospitals, dealing almost exclusively with maternity cases, at Kanowit, Sarikei, Mukah, Long San and Serian. Other institutions run by the Government Medical Department are the Rajah Charles Brooke Memorial Hospital for patients suffering from leprosy, situated at the Thirteenth Mile on the Kuching-Penrissen Road, and the Sarawak Mental Hospital, seven miles from Kuching. In all, there are 1,743 beds in government hospitals, and 115 in non-government hospitals, making a total of 1,858 beds available, for the population of 744,529. In addition there are 219 restbeds attached to the thirty static dispensaries run by the Medical and Health Department.

13. There were twenty private medical practitioners registered in Sarawak at the end of the year, in addition to the twenty-eight Government doctors and specialists, six Shell Oilfields doctors, and four Mission doctors.

14. There were five Government dental officers and 151 private dentists registered during 1961, but of the latter only four possessed degrees, or diplomas Scheduled under the Dentists Ordinance, the others being registered under a special provision of the Dentists Registration Ordinance.

15. Outside Government Service, there are no qualified pharmacists in Sarawak, but ninety-one annual licences, to sell poisons on a restricted basis, were issued to business concerns during 1961.

16. The number of midwives registered under the Midwives Ordinance was 443 of which 235 were in Central or Local Government employment.

17. Government's total estimated recurrent expenditure for 1961 was \$63,554,948.00, of which \$6,506,958.00 was allocated to Health Services, representing approximately 10.2 per cent of the total budget. This compares with 11.1 per cent in 1960 and 10.9 per cent in 1959. In addition, the sum of \$2,537,901.00 was provided in the Development Estimates, for work on development projects during the year. This included \$250,000 for the first phase of the new Kuching General Hospital, \$250,000.00 for the New Central Medical Stores, \$1,137,705.00 for the Malaria Eradication Project, and \$137,425 for the Tuberculosis Control Project. There was also a sum of \$196,400.00 provided, for items of Capital Expenditure, and \$40,000.00 for minor improvements to hospitals and dispensaries.

II. GENERAL REMARKS

18. The outstanding event of the year was undoubtedly the outbreak of cholera in Sarawak, the first since 1902. The outbreak began on the 12th July across river from Kuching in Kampong Surabaya, where several deaths from what was thought to be dysentery, were reported by a Health Inspector of the Kuching Rural District Council. An immediate investigation was made by the Divisional Medical Officer, First Division, who reported that there were several cases of severe "dysentery" in the kampong, one of whom was persuaded to go to hospital for admission. Laboratory investigations showed a cholera-type vibrio, which was isolated in culture. It was not possible to carry out all the tests required to make a definite identification of the strain in the Kuching laboratory, so specimens were sent to the Medical Research Institute in Kuala Lumpur, Federation of Malaya. Meanwhile, Geneva was notified that the First Division of Sarawak had been declared an infected local area, and supplies of vaccine were flown in from North Borneo, Malaya, Brunei, Hong Kong, and Singapore. The Kuching General Hospital staff took urgent steps to release accommodation for an estimated fifty to 100 cases in the first week. Legislative measures were taken to provide the health authorities with the necessary powers to close wells, disinfect houses and effects, and compulsorily vaccinate. Plans were made to ensure that an adequate supply of safe water was made available to the people affected. Vaccination teams were organised and there was a magnificent response from the public to an appeal for volunteers. On July 17th, the vaccination teams went into action, and 7,837 vaccinations were done. The following day, 12,000 people were protected, and in spite of a change to the intradermal technique necessitating further training of personnel, it was possible to increase the vaccinations done, to over 13,800, the next day. In five days, over 60,000 injections had been given. Meanwhile, additional wards had been opened at the hospital and Red Cross volunteers enlisted to help with the nursing of cases admitted. Two days after the first case was diagnosed, there were thirty-nine cases in hospital, and this number had almost doubled after a further two days. The laboratory worked at full pressure making intravenous fluids for drips, and the treatment was so successful that the hospital death rate was almost nil. The Medical and Health Department received most valuable help from other departments. The Marine Department supplied two water barges for consumers across river; the Public Works Department fitted these barges with tanks, pumps and pipes, and their Chemist/Bacteriologist disinfected over forty wells which had been closed; the Legal Department broke all records by drafting regulations, having them approved by members of Supreme Council, signed by the Governor's deputy, printed by the Government Printer, and published in the *Gazette*, all within five and a half hours. Unfortunately, at the time of the Kuching outbreak, the Kuching annual regatta was being held. This is a big social event and is attended by many visitors from other parts of the First Division, and from other divisions. Many stayed in kampongs, across river,

where they became infected, and later returned home before falling ill. In this way the disease spread to other areas in the First Division, and later to the Second Division, the Third Division, and finally to the Fourth Division, where one isolated case occurred. Vaccination campaigns were organised in all the affected districts, and by October 12th, it was possible to declare the First and Second Divisions free of infection. On October 19th, the whole country was declared free. Although it was later learned that it was, in fact, para-cholera, caused by an "El Tor" strain of the cholera vibrio, it was a virulent type, causing seventy deaths in the 301 cases which occurred. A mortality rate of approximately twenty-three per cent. Final figures for the outbreak were as follows:—

<i>Division</i>	<i>No. of Cases</i>	<i>No. of Deaths</i>	<i>Vaccinations done</i>
First	226	45	167,733
Second	33	15	56,687
Third	41	10	159,996
Fourth	1	—	59,262
Fifth	—	—	1,020
TOTALS:	301	70	444,698

19. During the year, the reorganisation and consolidation of the activities of the Medical and Health Department, mentioned in the last Annual Report, was virtually completed. In August, a Medical Officer was posted to Limbang where a small district hospital was established. He took over the duties of Divisional Medical Officer, Fifth Division. Thus, each of the five divisions now has its Divisional Medical Officer, who is in administrative control of all the department's activities within the division.

20. The Development Plan progressed satisfactorily except in the case of the New General Hospital, Kuching. Colombo Plan assistance, for this project, was requested in 1960 and as a result the Australian Government sent an architect to study the project during 1961. It is hoped further progress will soon be made in the building of this important and badly-needed institution. In addition the new forty-bedded Sarikei Hospital is scheduled for completion in December, and will be opened at the beginning of 1962. A new Dispensary was constructed at Simunjan, in the First Division and came into operation in December, and new dispensaries at Bekenu, and Pusa are in the course of construction. Old dispensary buildings have been or are being replaced by new structures at Marudi, Belaga and Kapit. The new Central Medical Stores and Manufacturing Laboratories at Tanah Puteh, in the new Kuching Port Area, were started and are due to be completed about April/May, 1962. When the Central Medical Stores Unit moves from its present accommodation in the Kuching General Hospital Compound, the existing Stores building will be converted into offices and classrooms, so releasing space for much-needed extra ward accommodation in the hospital.

III. STAFF

21. The senior staff of the department, as at the 31st December, 1961, was as follows:—

Designation	Establishment	Actual	Remarks
Director of Medical Services	...	1	1
Deputy Director of Medical Services		1	1
Specialist Health Officer	...	1	1
Ophthalmologist	...	1	— Vacant all year.
Medical Specialist	...	1	— Vacant all year.
Surgeons	...	3	Kuching, Sibu and Miri.
Specialist Alienist	...	1	1
Medical Officers	...	24	Including one part-time Lady Medical Officer.
Dental Officers	...	5	4
Superintendents	...	9	1 R.C.B. Memorial Hospital. 2 Sarawak Mental Hospital. 2 Health Superintendents. 1 Travelling Dispensary Superintendent. 1 Medical Stores Superintendent. 1 Laboratory Superintendent.
Radiographer	...	1	1
Principal Matron	...	1	1
Matrons (Grade II)	...	3	3
Sister Tutors	...	2	2
Health Sisters	...	2	2
Almoner	...	1	1
Nursing Sisters	...	21	2 Married Sisters on month-to-month terms.
Administrative Assistants	...	3	3
Pharmacist	...	1	—

22. The staff position, as far as Specialists and Medical Officers is concerned, deteriorated during the year, and on the 31st December there were vacancies for two specialists (Ophthalmologist and Medical Specialist), and six medical officers in spite of the return of two local doctors, after completion of their training and house appointments in Singapore.

23. By the end of the year, all vacancies on the establishment of matrons, nursing sisters, health sisters and tutors had been filled. One local Senior Staff Nurse returned from the United Kingdom after completing her S.R.N., S.C.M. training, and was appointed to the establishment as a Nursing Sister. Two vacancies on the establishment were filled temporarily by married nursing sisters.

24. The Director of Medical Services represented the Government of Sarawak at the Twelfth Session of the World Health Organisation Regional Committee for the Western Pacific Region, in Wellington, New Zealand, from August 31st to September 5th. One Medical Officer attended a World Health Organisation Inter-Regional Post-graduate Leprosy Training Course in Manila from 20th November to 10th December.

IV. VISITORS

25. The following distinguished visitors from overseas, paid visits to Sarawak during the year, either to give expert advice or to inspect various aspects of the work of the department:—

Sir Harry Wunderley	— Colombo Plan Adviser on Tuberculosis.
Dr. J. C. Tao	— WHO Regional Tuberculosis Adviser.
Dr. W. W. Yung	— WHO Area Representative, Epidemiological Station, Singapore.
Dr. L. J. Clapham, C.B.E.	— Director of Medical Services, North Borneo.
Mr. F. A. W. Byron, O.B.E., M.I.E.E.	— Senior Engineer in the Electrical Engineering Department of the Crown Agents.
Miss F. N. Udell, C.B.E.	— Chief Nursing Officer, Colonial Office, London.
Dr. M. Postiglione	— Senior Regional Malaria Adviser, WPRO, Manila.
Mr. J. B. Horner	— Senior Training Officer, Public Service Commissioner's Department, Papua, New Guinea.
Mr. D. H. Fulton	— Architect, Melbourne.
Mr. H. L. Spence Jr.	— Regional Representative, U.N. Technical Assistance Bureau.
Dr. G. R. Wadsworth	— WHO Adviser on Nutrition, WPRO, Manila.
Mr. J. K. Thompson	— Director of the Colombo Plan Bureau, Ceylon.
Mr. Lewis Perinbam	— Acting Executive Secretary, Canadian University Service Overseas.
Professor C. Y. Chow	— Regional Entomologist, WPRO, Manila.
Dr. F. J. Wright	— Senior Lecturer in Tropical Medicine, University of Edinburgh.
Dr. C. E. Gordon-Smith	— Medical Research Council.
Mr. R. N. Clark	— Chief Sanitary Engineer, WHO, Manila.
Mr. J. B. Arbuthnot	— Regional Sanitary Engineer, WHO, Manila.

Mr. R. L. Hutchens — New Zealand Commisioner, Singapore.

Mr. A. Vaidynathan — Deputy Regional Representative, U.N. Technical Assistance Bureau.

Mr. M. L. Petitjean — Administrative Officer, Malaria Eradication Administrative Methods.

Dr. C. T. Chen — Regional Malaria Adviser, WPRO, Manila.

Mr. P. S. Eschavez — WHO Regional Sanitary Engineer, WPRO, Manila.

Col. R. Traub — Commanding Officer of the U.S. Army, Medical Research Unit, Kuala Lumpur.

Mr. D. F. Dunlop
Mr. A. Ashley-Jones
Mr. R. J. Lawrence } — New Zealand Deputation.

Mr. A. G. Kheradjau — Far Eastern Operation Department of the International Bank for Reconstruction and Development.

Mr. S. Polak — Area Representative, UNICEF, Bangkok.

V. TRAINING

(a) Overseas

26. During the year eighteen members of the staff returned to duty, having completed courses of training overseas as follows:—

<i>Course</i>	<i>Number</i>	<i>Where taken</i>
Medicine	2	Malaya
Post-Graduate Medical (M.R.C.O.G. & M.R.C.P.)	2	United Kingdom
Nursing	1	United Kingdom
Health Inspection	7	4 New Zealand 2 Australia 1 Malaya
Operating Theatre Techniques	3	Australia
Radiography	1	Australia
Dispensing	1	Australia
Prosthetic Techniques	1	Japan

27. In addition, there were a further twenty-five Government sponsored students, and eight serving officers undergoing training in medical or para-medical subjects, at the end of the year, as shown in the following table, making a total of thirty-three in all:—

Course	Number	United Kingdom	Malaya	Colombo Plan countries
Medicine	16	1	2	13
Dentistry	2	—	1	1
Dental Nursing	5	—	—	5
Pharmacy (B.Sc.Hons.)	1	—	1	—
Nursing and Midwifery	4	3	—	1
Post-Graduate Medical (Ophthalmology, Pathology and Medicine)	3	3	—	—
Dental Mechanics	1	—	1	—
Physiotherapy	1	—	—	1

Valuable help in the training of personnel of all kinds has been received, as in previous years, from Colombo Plan Countries, especially Australia, New Zealand and Canada. The first trainee, sent to Japan under the Colombo Plan, returned to Sarawak in October, after a year's training on prosthetic techniques in the National Institute for the Rehabilitation of the Physically Disabled in Tokyo. He has learned to make and fit, below-knee and below-elbow artificial limbs, and is now being provided with a small workshop in the General Hospital, Kuching. A request has been made by Government for further help from Japan in the form of equipment and machinery for his workshop. One female X-ray technician returned in December, from Australia, after an eight-month practical course of training in radiographic techniques, and a second is due to follow next year. This is the first time that training of this nature has been made available under the Colombo Plan. Previously, X-ray technicians have been sent to the United Kingdom for further training. In addition to the degree courses in Medicine and Dentistry, Australia has continued to make available short courses for nurses and hospital assistants. Three hospital assistants attended practical courses of training in operating theatre techniques, during the year. Advantage was taken of the partial recognition given to the Sarawak training by the General Nursing Council, and four nurses who commenced training after February, 1958, were selected for full S.R.N. training, in the United Kingdom in 1962.

(b) Local

28. The local training of nurses and other auxiliary staff, on a departmental basis, continued during the year. At the end of 1961 there were fifty-six student nurses in training. In addition six student nurses were undergoing a training in mental nursing at the Sarawak Mental Hospital. As reported in the 1960 Annual Report, women with a satisfactory standard of education are now coming forward for training, in adequate numbers, and as a consequence no further male nurses are being recruited. The last eleven, recruited in 1960, were sent this year to a special training school for hospital assistants set up in Miri, under the supervision of the Divisional Medical Officer, Fourth Division. There they are being taught the diagnosis treatment and prevention of the common diseases of the country,

and are thus being fitted more adequately to perform their duties as hospital assistants in charge of outstation static and travelling dispensaries. It is intended gradually to replace all males nurses in hospital wards, by females, and to utilise hospital assistants for work in special departments, such as the operating theatre, out-patient clinics, casualty reception centre, etc.

29. During the year, twenty nurses and nine hospital assistants passed their final qualifying examination. Six student nurses and three student hospital assistants who failed their final examinations in December are due to sit again, in mid 1962.

30. A new training centre for hospital assistants is in the course of construction at the Rajah Charles Brooke Memorial Hospital at 13th Mile, Penrissen Road, with funds generously provided by the British Leprosy Relief Association. When completed, this centre will be used to train hospital assistants from all over Sarawak in the diagnosis and treatment of leprosy, with special emphasis on the treatment of patients suffering from the disease, at the rural dispensaries.

31. The local training of X-ray technicians, laboratory technicians and dispensers continued in the Kuching General Hospital, the Central Laboratory, and the Central Medical Stores. Three dispensers passed their final qualifying examinations during the year, and there were twelve technicians and three dispensers in training at the end of the year. The training of laboratory technicians which is under the direction of the Medical Officer-in-Charge has greatly benefited from the presence of a Colombo Plan laboratory technologist from Australia. The Medical Officer-in-Charge proceeded on study leave during the year and was successful in gaining the Diploma in Pathology of the Conjoint Board, England.

32. In an attempt to provide some help in dealing with day-to-day minor ailments in as many longhouses and kampongs as possible, a scheme for the training of voluntary workers, known as "Home Helps" was started during the year. Short courses of instruction were held in divisional hospitals by the Travelling Dispensary Superintendent for suitable trainees from remote longhouses, and a kit of simple drugs and dressing was supplied to each, on the successful completion of the course. By the end of 1961, 122 "Home Helps" had been trained in the five divisions, and further courses are planned for 1962. Preliminary reports on the progress of this scheme are encouraging.

33. The training of entomological assistants and microscopists for the Sarawak Malaria Eradication Project continued under the direction of the World Health Organisation advisers and the supervision of the Senior Government staff attached to the Project. A course of instruction for investigators was conducted during the year by the World Health Organisation Entomologist and the Regional Adviser on Entomology from Manila.

34. During 1961 certain changes in policy, in the training programme for midwives were brought into effect. As a result the course for midwives is now of two years duration and includes instruction in certain aspects of rural health work relating to mothers and children. Trained nurses taking the course are however exempted from the first year of study. There were forty-eight midwives in training of whom fifteen were trained nurses taking the second year of study and thirty-three were pupil midwives taking the full two years course.

35. Simple training in the rudiments of midwifery is still given in divisional hospitals to women from remote longhouses and rural kampongs. They work on a voluntary, unpaid basis, when they return home.

36. Refresher courses for District Council midwives and assistant health visitors were held in Kuching and Miri during the year, at which the principles of health education, and public health work were emphasised. By widening the scope of their training, it is hoped to make the district midwife a more useful and more general purpose auxiliary worker than she has hitherto been, until such time as fully trained health visitors become available. The first of the courses was held in Kuching from January to March, and a further course was held in Miri in December, both being run by the Health Matron. Eleven District Council midwives, and seven assistant health visitors attended these courses. In addition, two trainees from Community Development Schemes, and one student Health Inspector were included.

37. In connection with the Tuberculosis Control Project, nineteen assistant health visitors recruited mainly in Sibu, were given a three-month course of training in Kuching, in general public health and medical subjects from September to November in anticipation of the extension in 1962, of the Project, to the Third Division. In November, all were accepted for further specialist training in Tuberculosis at the Chest Clinic, General Hospital, and Central Laboratory, Kuching.

VI. DIVISIONAL ORGANISATION

38. As already mentioned in paragraph 18 under General Remarks, Chapter II, a further step was taken during the year in the divisional reorganisation which was brought into effect during 1959 and 1960, with the appointment of a Divisional Medical Officer to the Fifth Division. In addition to being in administrative control of all the department's activities in the Fifth Division, this officer will also be in charge of the small divisional hospital established in Limbang during the year.

39. A separate Divisional Medical Officer's office, Third Division, was temporarily established in an old government quarter. Permanent accommodation will it is hoped be provided later, in a new office block to be built in Sibu.

The Divisional Medical Officer, First Division, and his staff moved to new office accommodation in the newly-built Kuching Rural District Council Office block. In addition to offices for the Divisional Medical Officer, the Health Superintendent, the Health Sister, and the clerical staff, there is also a lecture room for assistant health visitors and for rural midwives doing refresher courses. The Divisional Medical Officer, Second Division, and his staff moved out of Simanggang hospital, into rented accommodation in a shophouse, until government office accommodation becomes available later.

40. Two Divisional Medical Officers' conferences were held in Kuching during the year, at which matters of departmental policy were discussed and standard lists of drugs and equipment for use in Static Dispensaries by *ulu* dressers and other medical auxiliaries were approved.

41. Divisional Medical Officers now control all expenditure in their divisions, including financial control of the activities of the Sarawak Malaria Eradication Project. In the First Division, the administrative control of the Tuberculosis Control Project, is also in the hands of the Divisional Medical Officer, First Division, though financial control still remains with Medical Headquarters, as this is a Colonial Development and Welfare assisted programme. When the Project extends to the Third Division, the Divisional Medical Officer there, will similarly be in administrative control.

VII. PREVENTIVE AND SOCIAL MEDICINE

42. During the year, the presence in Medical Headquarters of the Specialist Health Officer (to be renamed Assistant Director of Medical Services (Health) in the 1962 printed estimates) greatly strengthened the work of this section. He is now responsible for the Malaria Eradication Project, the Tuberculosis Control Project, and the control of communicable diseases in general. In addition he has been concerned with the drafting of Public Health legislation, the supervision of the health inspectorate and environmental sanitation problems. Divisional Medical Officers have also been able to spend more time on the administration of these mass health campaigns, have been able to travel more freely and have devoted more time to district affairs.

43. Progress was made in the field of health education. The new course at Miri for hospital assistants emphasises the importance of this aspect of their duties. Refresher courses for District Council midwives, and assistant health visitors, were held by the Health Matron, during which the principles of health education and public health work were taught. During the year, also, advantage was taken of both press and radio to present various aspects of health education, to the public. The cholera outbreak gave the department an excellent opportunity of driving home the dangers of poor environmental sanitation, and full advantage was taken of this, in press releases and radio talks. Lectures were given to schools, teachers, and administrative cadet officers, by various members of the staff, while visiting experts were given the opportunity of holding press and radio interviews during their visits to Kuching. Films dealing with tuberculosis and other health subjects have also been shown in local cinemas, and throughout the country by the Government Information Service. A start has been made with the preparation of posters and pamphlets, for distribution in 1962.

44. *School Medical Service.*

It is still not possible to provide for the regular medical examination of school children. But with the co-operation of the Education Department, it has been possible to ensure that more attention is given to the teaching of simple rules of hygiene to school children. Free treatment is also given at Government dispensaries and hospitals, to all school children. Following the visit of the World Health Organisation Regional Adviser on Nutrition, regular returns of the heights and weights of children in various schools have been collected and sent to him, for analysis. In certain schools with boarding facilities, where adequate supervision is available, supplies of U.N.I.C.E.F. dried skim milk have been made available as a supplement to the diet of the pupils.

45. *Maternal and Child Health Services.*

There were at the end of 1961, 433 trained midwives on the register, of which 235 are in Central or Local Government employment. As already stated in Chapter V—Training, paragraphs 35 to 37, more emphasis has been placed during the year, on training these women in public health work, and the care of children. The new two-year course of training for midwives has been drawn up, with this aim in view, and for midwives already in service, refresher courses were held, which included instruction in these aspects of their work. In this way it is hoped to spread infant welfare work to the country districts from the main towns to which at present it is largely confined. Detailed figures of the work done by these services during 1961 will be found in the section on Specialised Services.

46. *Dental Health.*

The work of the three dental clinics at Kuching, Sibu and Miri continued to increase during the year. One dental officer retired on pension, leaving one vacancy in the establishment of five dental officers. A dental nurse returned from New Zealand, after a two years' course of training, under Colombo Plan auspices. Four girls left in March for New Zealand to start their two years dental nurses training, and it is planned to send four more in 1962 and a further four in 1963. On their return, the school dental service will be gradually extended. The Superintending Dental Officer gave several lectures on dental health during the year, to teachers in the Teachers' Training College and to school children. A Fluoridation Advisory Committee was appointed by Government, under the chairmanship of the Director of Public Works, to advise on the fluoridation of water supplies in Sarawak. The Superintending Dental Officer is a member of this Committee. Dental surveys have been carried out by officers of our dental section, which have confirmed that there is a high incidence of caries among school children. The Committee has, therefore, advised that all water supplies deficient in fluorides will be treated by adding 0.7 parts of sodium fluoride to every million part of water. An early start is expected in Simanggang, Sarikei and Binatang, which all have newly commissioned, fully treated water supplies. Detailed figures of the work done by the Dental Services during 1961 will be found in the section on Specialised Services.

47. *Mental Health.*

At a meeting of Council Negri, held at the beginning of November, the old Lunacy Ordinance was repealed, and replaced by a new Mental Health Ordinance (1961). Regulations under the new Ordinance were also drafted, and these will come into effect on 1st January, 1962.

48. There has been a steady increase in the number of voluntary patients admitted to the Sarawak Mental Hospital, during the year, and attendance at the outpatients clinics in Kuching, Sibu and Sarikei have shown a marked increase. Regular fortnightly visits have been made to Sibu and Sarikei by the Specialist Alienist and other senior members of his staff. Other centres, such as Miri, Marudi, Binatang and Kapit, have also been visited from time to time, as the need has arisen. The question of a research project, to investigate the varying incidence of mental disorder in the different races in Sarawak, has been raised by the Specialist Alienist, and is under active consideration. Details and figures of the work done in the Sarawak Mental Hospital and in the outpatient clinics will be found in the section on Special Hospitals.

VIII. EPIDEMIC AND ENDEMIC DISEASES

(a) *Malaria*

49. The year marked the transition of large areas of the country from the attack phase to the consolidation phase of the Sarawak Malaria Eradication Project. Spraying continued along the border with Kalimantan, and in a few areas where transmission was still occurring. Every effort was made to establish a high standard of active and passive case detection in all divisions and to ensure the early investigation of any cases of malaria found as a result. The radical treatment of all known positives was also given special attention, steps being taken to complete their cure as soon as possible.

50. In March, 1961, a draft Plan of Operations was submitted to the World Health Organisation, containing a request for Malaria Eradication Special Account aid to Sarawak. After considering a number of amendments suggested by the World Health Organisation the final Plan of Operations was completed in October and approval of the World Health Organisation has now been obtained. Technical advice was provided throughout the year by a World Health Organisation Advisory Team, consisting of a Senior Malaria Adviser, an Entomologist and a Sanitarian.

The project is described in greater technical detail at Appendix IV to this report.

(b) Tuberculosis

51. The Tuberculosis Control Project passed from the "hidden" phase to the "active" phase in March, 1961, when control operations commenced in Kuching. Teams tuberculin-tested school children, and gave Bacilli Calmette Guerin vaccination to those requiring protection.

52. Mass miniature radiography was carried out on certain high risk adult groups and on all children who were positive reactors to the tuberculin test. Sputum examinations were also made in appropriate cases. To those so requiring it chemoprophylaxis with I.N.H. or chemotherapy using P.A.S., I.N.H. and in special cases Streptomycin was given. To ensure that these drugs were taken regularly assistant health visitors specially trained for the purpose provided a "follow-up" service by making frequent home visits.

53. Colombo Plan assistance for the project was provided during the year. A Colombo Plan nursing sister and radiographer both arrived for duty in Sarawak, and considerable supplies of equipment and drugs were also received. Eighty per cent of the local costs of the project are met from Colonial Development and Welfare funds. In preparation for the extension of the project to Sibu, personnel were recruited from that town and are undergoing training at present in Kuching.

54. In Kuching, up to 31st October, 1961, nineteen schools had been visited and contact tracing and home visiting carried out at the same time. A summary of work done is given below:—

Tuberculin tests performed	12,521
B.C.G. vaccinations	7,271
Miniature radiographic examinations	12,236
Sputum examinations	3,795

The project is described in greater technical detail at Appendix V to this report.

(c) Leprosy

55. While the Rajah Charles Brooke Memorial Hospital is the centre of activity in connection with Leprosy work a move is gradually being made towards the treatment of this disease on an outpatient basis particularly in the rural areas. To this end a special training centre is being established at which hospital assistants in charge of rural dispensaries can receive instruction in the diagnosis

and treatment of the disease. It is also planned later to utilise rural health workers presently employed on mass health projects such as Malaria and Tuberculosis in connection with case-finding and follow-up work. A revised drug regime was introduced during the year using D.P.T. and Eitisul in place of D.D.S. and U.C.B. injections. It is as yet too early to comment on its effectiveness. Lepra reactions are still proving troublesome and clinical trials of new drugs to counteract these are being conducted at present.

(d) Endemic Goitre

56. The Salt Iodisation plant at Sibu, has continued to function satisfactorily, and the distinctive green-tinted, iodised salt is now selling well throughout the Third Division. Funds have been made available for the purchase of similar plant for installation in Kuching and Miri or Marudi. The Kuching plant, when installed, will be used to iodise all salt destined for the Second Division, which is imported through Kuching, as well as for goitrous areas in the First Division, and the third plant will deal with salt for the Fourth and Fifth Divisions. The site of this has not yet been decided.

(e) Dysentery and Enteric Fever

57. There continues to be a distressingly large number of cases of dysentery and enteric fever, the result of poor, or often non-existent, environmental sanitation facilities. During the year 2,682 cases of dysentery and 301 cases of typhoid fever were reported. In an effort to improve environmental sanitation in rural areas, a scheme for the training of rural health improvement workers was recently submitted to Government. A pilot project for the establishing of latrines in kampongs in the *ulu* areas of the First Division, was also started by the Divisional Medical Officer and his staff, in close co-operation with local Councils and their health inspectors. *Aqua privies*, and pit latrines were constructed in three different areas, with considerable success, and the project continues in other districts of the Division.

(f) Trachoma

58. In the absence of an ophthalmologist during the year, it has not been possible to consider further plans for the control of trachoma. One development in this field, however, is the pilot scheme reported in Chapter XII—Voluntary Organisations, in paragraph 155, Sarawak Society for the Blind. The distribution of posters and antibiotic eye-ointment to longhouses in the Second Division should, if successful, help to control the disease in the areas covered, and may be the start of a more widespread campaign to prevent blindness.

(g) Quarantinable diseases

59. An account of the recent cholera outbreak has already been given in Chapter II, General Remarks.

No case of smallpox, plague, yellow fever, louse-borne typhus fever, or louse-born relapsing fever occurred during the year. Vaccinations against smallpox continued to be given throughout the country, especially along the border areas of Sarawak and Kalimantan (Indonesian Borneo), as outbreaks of smallpox were reported during the year in various parts of the Republic of Indonesia.

IX. HOSPITALS AND DISPENSARIES

(a) General Hospitals

60. During the year a small divisional hospital was opened, at Limbang, with a Medical Officer-in-Charge, and a new district hospital at Sarikei was almost completed, and will be commissioned during 1962. Alterations to the General Hospital, Kuching led to an increase in the total number of beds available, from 308 to 342.

61. The distribution of beds in the five Government hospitals, in Kuching, Sibu, Miri, Simanggang and Limbang, as at 31st December, 1961, was as follows:—

Hospital	General	Obstetrics	T.B.	Infections	Mental	Total
1. Kuching General Hospital	238	49	44	11	—	342
2. Lau King Howe Hospital, Sibu	171	32	48	19	10	280
3. Simanggang General Hospital	65	4	36	—	—	105
4. Miri General Hospital	77	10	61	—	—	148
5. Limbang Hospital	12	—	—	—	—	12
	563	95	189	30	10	887

62. In addition, there are twenty-six beds in the T.B. Convalescent Home, seven miles from Kuching, making a total of 913 beds available in Government Institutions, excluding the special beds in the Mental Hospital, and the Rajah Charles Brooke Memorial Hospital.

63. To this total can be added 115 beds in mission hospitals, the majority of which are for obstetrics. The largest of the mission hospitals, is a general hospital situated at Kapit, in the Third Division, and run by the Methodist Mission. Known as Christ Hospital, Kapit, it has forty-six beds, in a modern building opened in September, 1960, which contains X-ray and operating theatre facilities and has two doctors, a dentist and a pharmacist on its staff. This hospital admitted 1,846 patients during 1961, and there were 103 major and 123 minor operations performed. Sixty-seven normal and fifteen operative deliveries were also conducted in the maternity section, and the total number of outpatients treated was 8,460.

64. The other mission hospitals, are run by the Roman Catholic Mission at:—

Serian	—	First Division	—	12 beds
Sarikei	—	Third Division	—	10 beds
Mukah	—	Third Division	—	5 beds
Kanowit	—	Third Division	—	26 beds
Long San	—	Fourth Division	—	16 beds
				69

All these sixty-nine beds are for obstetrics.

65. There is therefore a total of 1,028 general beds in the country, or one bed per 724 of the population, excluding the special beds for the treatment of leprosy and mental disorders. This compares with one bed per 764 of the population in 1960.



An Assistant Health Visitor giving cholera inoculations during the outbreak of the disease in 1961.



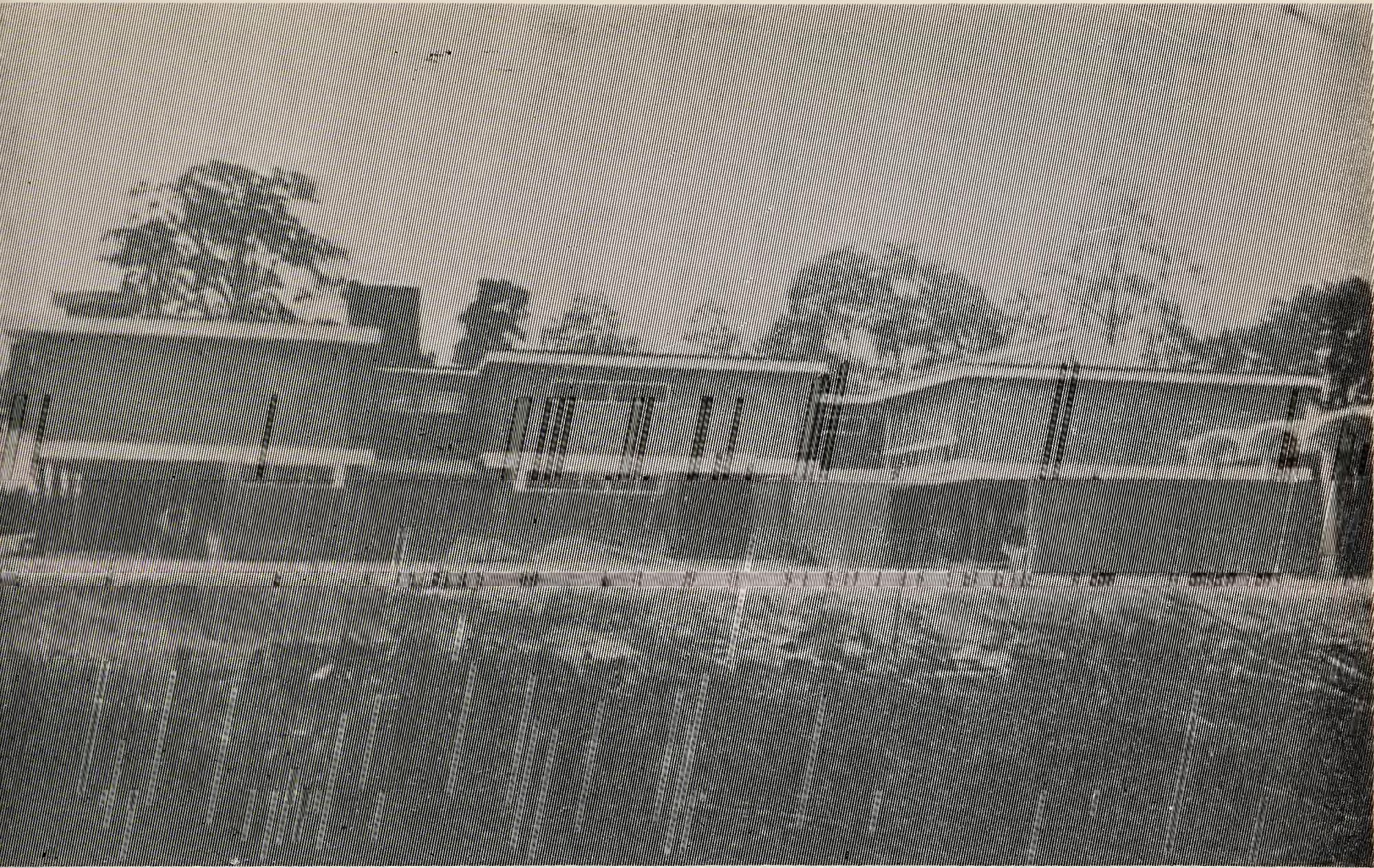
The Travelling Dispensary Superintendent giving instruction to "Home Help" students during one of the courses held in 1961.



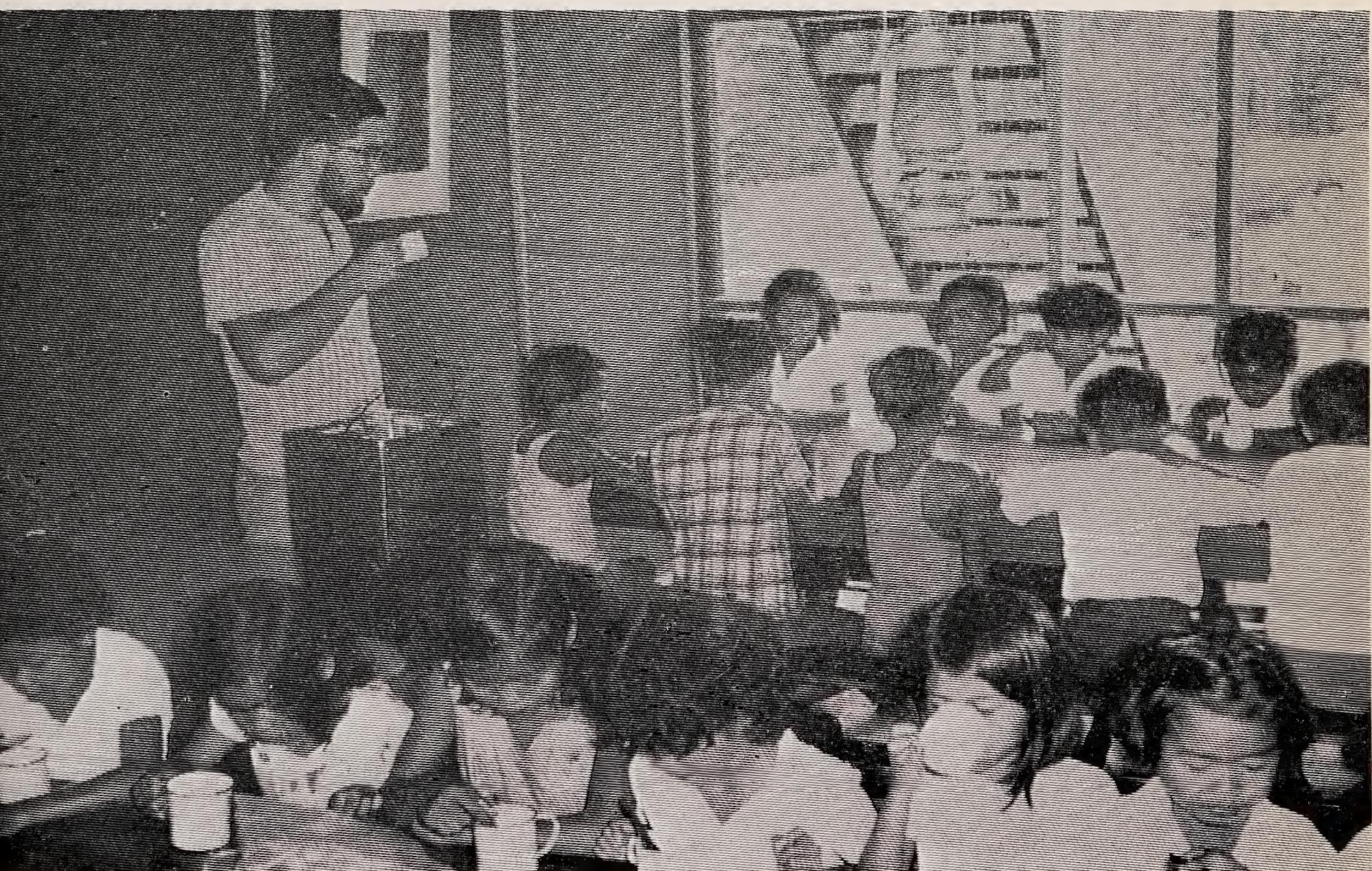
The school dental clinic in the Health Centre, Kuching, with two New Zealand trained dental nurses in action.



A visiting serviceman donating his blood to the Kuching General Hospital blood bank.



The new Sarakei Hospital, just before its completion.



... in the Lemanak Community Development Scheme School, have their daily drink of reconstituted U.N.I.C.E.F. dried milk.



Student nurses and hospital assistants in the Preliminary Training School, Kuching, with the Sister Tutor in the background.



An ornate carved Punan coffin made by a patient in the Rajah Charles Brooke Memorial Hospital, for the Sarawak Museum.

66. *General Hospital In-patient returns.*

<i>Hospital</i>	<i>1957</i>	<i>1958</i>	<i>1959</i>	<i>1960</i>	<i>1961</i>
Kuching General	7,426	7,925	8,395	8,416	8,589
Lau King Howe, Sibu	3,954	4,594	5,637	6,028	7,320
Simanggang General	1,192	1,205	1,326	1,625	1,559
Miri General	2,468	2,174	2,079	2,812	3,475
Total	15,040	15,898	17,437	18,881	20,943

There has, therefore, been an increase in the total number of inpatients treated in the four general hospitals, of 5,903, over the last five years, i.e., an increase of just under forty per cent.

67. *General Hospital, Kuching.*

This hospital serves Kuching, the whole of the First Division, and part of the Second Division which has easier access to Kuching than to Simanggang. Alterations to this hospital, during 1961, have increased the total number of available beds from 300 to 342. This has been achieved by the re-conversion of a store, formerly a ward, back into a ward; by the conversion of cubicles into an open general ward and by knocking down various walls, and other obstructions, to provide additional bed-space. Due to re-decoration of the hospital, it was not possible to bring all the extra beds into use, by the end of the year, but the extra accommodation when available will help to relieve the pressure on beds, especially in the surgical wards. Plans have been made to increase the number of beds further, in 1962, when the Medical Stores Section moves to its new accommodation.

68. As already mentioned in the General Section, paragraph 19, little obvious progress was made during the year, in the plans for building a new Kuching General Hospital but negotiations with the Australian Government regarding financial assistance under Colombo Plan auspices proceeded and more rapid progress may be expected, in 1962. The senior professional staff of the hospital consisted of—

On 31st December, 1961.

- 1 Medical Officer-in-Charge
- 1 Surgical Specialist
- 3 Medical Officers (Plus one on leave)
- 1 Acting Matron
- 8 Nursing Sisters
- 2 Sister Tutors
- 1 Almoner.

69. Although there is still a shortage of locally trained nursing staff, this situation is gradually improving each year, as the Training School turns out more trained nurses. Hospital assistants doing ward duties, are gradually being replaced by nurses, and no new male hospital assistants were recruited during the year.

70. The new senior officers' clinic which was constructed during 1960, opened in February, 1961, together with an admission room and minor casualty treatment centre. These three facilities have greatly improved the services offered to senior officers and their families, and have made easier and quicker, the admission of cases to hospital, and the treatment of minor casualties. Some 800 minor casualty cases, formerly examined in a corner of the male surgical ward, and 420 minor injuries, formerly sutured in the main theatre, were diverted to this new unit, during the eleven months of its operation.

71. The interior of the hospital was completely re-decorated and, this together with the alterations described above, has greatly enhanced the appearance of the hospital. One room has been set aside for the use of Red Cross volunteers who run a play-room for young patients in the mornings, and for Occupational Therapy in the afternoons.

72. The outbreak of cholera in July placed a heavy strain on the medical and nursing staff, and taxed the accommodation to its limits. A total of 106 cases were admitted, of which three died. Whilst in the acute stage, these cases were all nursed in one ward the sexes being separated by screens in the middle of the ward. As they became convalescent, they were transferred to two wards, converted from two former mental wards. All grades of staff in the hospital did an excellent job during the outbreak, and the results obtained reflect great credit on all concerned.

73. The general out-patient department of the hospital is situated in the Health Centre, near the town centre, and in the same building is housed a Maternal and Child Health Clinic, an Eye Clinic and a Dental Clinic. The general outpatient clinic is administered by a medical officer seconded from the General Hospital, assisted by a part-time lady medical officer. A nursing sister is also seconded from the General Hospital. During the year the Medical Officer-in-Charge went on leave, and due to hospital commitments, his relief could not work full-time in the clinic. The temporary lady medical officer greatly assisted, by working full-time for the last few months of the year. In addition to the daily out-patient clinics, special clinics were held in the afternoons for medical, surgical, gynaecological and antenatal cases. Fracture cases are seen at a special fracture clinic held weekly at the General Hospital.

74. Statistics for the year, for the out-patient department are given below:—

	<i>Male</i>	<i>Female</i>	<i>Total</i>
New patients treated	9,579	14,694	24,273
Minor Operations performed	—	—	1,557
Medical Examination of Candidates for Government or local authority Service	—	—	2,012
Total number of cases referred to the General Hospital for admission	—	—	1,154

The commonest conditions treated were respiratory infections, digestive upsets, helminthiasis, avitaminosis, anaemias, boils and abscesses, aural diseases and skin conditions.

75. During the year the former A.T.A.S. Convalescent Home for patients suffering from tuberculosis, was transferred to the administration of the Medical

Officer-in-Charge of the General Hospital, and became an annexe of the hospital. Towards the end of the year its accommodation was increased and it now caters for chronic tuberculous patients, so that these need no longer be admitted to the acute wards of the hospital.

76. The Wee Kheng Chiang Chest Clinic was completely separated from the administration of the General Hospital, and is now administered by the Divisional Medical Officer, First Division. A summary of the work done in this clinic can be found in Appendix V to this report.

77. *The Lau King Howe Hospital, Sibu.*

1961 was the first full working year of the enlarged and modernised hospital and generally, there was an increase in the work done by all departments. Inpatients increased from 6,028 in 1960 to 7,320 in 1961.

Statistics for the Hospital out-patient department are given below:—

New patients treated	32,646
Minor Operations performed	881
Medical Examination of Candidates for Government or local authority Service	572

The senior professional staff attached to the hospital consisted of—

- 1 Medical Officer-in-Charge hospital
- 1 Surgeon
- 2 Medical Officers
- 1 Matron
- 4 Nursing Sisters

The addition of one medical officer helped to relieve the strain under which the medical staff had been working during 1960.

78. Earth-filling of the low-lying grounds of the hospital, continued during the year, and the 1961 programme was completed according to schedule. A revised drainage plan, however, prevented the final finish to the grounds. A new kitchen was added to the Nurses Home, but otherwise no new building work was done in 1961. Plans were under consideration, however, for a re-arrangement of the available accommodation in the out-patient block, in order to provide for a chest clinic early in 1962, in anticipation of the start of the Tuberculosis Control Project in Sibu, about the middle of the year. Already, the work of this clinic is increasing steadily, an average of five new patients being seen per working day.

79. *Simanggang General Hospital.*

The number of inpatients treated was slightly lower than in 1960, and it appears that, at present, an annual admission rate per annum of between 1,500 and 1,600 can be expected. This number may well increase however when the final stages of the Kuching/Simanggang trunk road are completed, and the new

road to the Third Division is built, thus making communications in the Second Division, easier. The senior, professional staff during the year was—

- 1 Divisional Medical Officer
- 1 Medical Officer-in-Charge
- 1 Nursing Sister

The Divisional Medical Officer is not normally involved in clinical duties in the hospital, but was occasionally called on to assist the Medical Officer-in-Charge.

80. A quarter to accommodate two nursing sisters was under construction during the year, but had not been completed by the end of 1961. A second Sister will be posted to Simanggang early in 1962.

81. Tiling of the hospital was nearly completed by the end of the year and plans had been prepared for the construction of a new mortuary with refrigeration facilities, to replace the existing, inadequate building.

82. Statistics for the hospital out-patient department are given below:—

New patients treated	10,520
Minor operations performed	219
Medical Examination of Candidates for Government or local authority Service	204

83. *Miri General Hospital.*

1961 saw the first full year of operation of the Miri General Hospital, as a government institution. The former Sarawak Shell Oilfields Limited Hospital, the government Tuberculosis Hospital, and the Miri Static dispensary, are now combined to form one unit, administered by the Medical Officer-in-Charge of the General Hospital. Work in the hospital steadily increased throughout the year until by December it was obvious that additional staff would be required to meet increased demands.

The senior professional staff attached to the hospital was as follows:—

- 1 Medical Officer-in-Charge (until August, 1961)
- 1 Surgeon (also acted as Medical Officer-in-Charge from August to December)
- 1 Part-time Medical Officer (from August, 1961)
- 2 Nursing Sisters.

84. Miri Dispensary which has been suitably modified now serves as the out-patient department of the hospital. An out-patient clinic is also held at the General Hospital for senior officers, their wives and families.

Statistics for the hospital out-patient department are given below:—

New patients treated	31,897
Minor operations performed	881
Medical examination of Candidates for Government or local authority Service	397

85. *Limbang Hospital.*

The addition to the Limbang Dispensary of an operating theatre, X-ray room and some extra bed accommodation provided facilities justifying the posting of a Medical Officer in August and thus for the first time a hospital was established in the Fifth Division with twelve beds. The number of inpatients treated including "rest bed" cases admitted prior to its conversion to a hospital was 294. The total number of out-patients for the year was 8,449.

(b) **Static and Travelling Dispensaries**

86. There were thirty static dispensaries and twelve travelling Government dispensaries in operation throughout Sarawak during the year. In December a new static dispensary was opened at Simunjan in the First Division, making the total thirty-one, but in August, Limbang Dispensary became a Divisional Hospital, and so the total number of dispensaries remains at thirty. All these are manned by trained hospital assistants and supervised by Divisional Medical Officers and a Travelling Dispensary Superintendent.

87. All but one of the static dispensaries contain rest beds for the admission of patients from a distance who require a few days in-patient treatment before returning home. Returns for the year are as follows:—

	<i>First Division</i>	<i>No. of Restbeds</i>	<i>New Patients</i>	<i>Admissions</i>
1.	Bau Dispensary	4	13,260	67
2.	Lundu Dispensary	4	12,071	190
3.	Serian Dispensary	5	17,290	45
4.	Tebakang Dispensary	4	6,913	38
5.	Nonok Dispensary	3	4,434	9
* 6.	Simunjan Dispensary	5	409	1
	<i>Second Division</i>			
7.	Lubok Antu Dispensary	4	4,450	72
8.	Engkilili Dispensary	5	9,128	82
9.	Lingga Dispensary	7	6,293	131
10.	Sebuyau Dispensary	7	6,628	117
11.	Betong Dispensary	15	9,077	317
12.	Spaoh Dispensary	8	3,456	99
13.	Debak Dispensary	0	3,520	27
14.	Saratok Dispensary	6	11,304	241
15.	Kabong Dispensary	10	3,269	64
	<i>Third Division</i>			
16.	Sarikei Dispensary	12	13,543	219
17.	Binatang Dispensary	12	11,550	65
18.	Matu Dispensary	6	4,505	10
19.	Dalat Dispensary	6	6,088	47

Notes:

* Simunjan Dispensary opened in December, 1961. Previously only a Travelling Dispensary was stationed at Simunjan.

	<i>Third Division</i>	<i>No. of Restbeds</i>	<i>New Patients</i>	<i>Admissions</i>
20.	Mukah Dispensary	8	8,657	118
21.	Balingian Dispensary	6	2,744	132
22.	Kanowit Dispensary	10	1,644	50
23.	Julau Dispensary	14	12,268	388
24.	Song Dispensary	8	10,125	189
†25.	Kapit Dispensary	4	11,810	40
26.	Belaga Dispensary	8	5,670	36
	<i>Fourth Division</i>			
‡27.	Marudi Dispensary	10	9,484	255
28.	Bintulu Dispensary	14	6,852	268
	<i>Fifth Division</i>			
29.	Lawas Dispensary	10	9,719	85
30.	Sundar Dispensary	4	687	11
		<hr/> 219	<hr/> 226,848	<hr/> 3,413

88. The travelling dispensaries are all established on long boats with the exception of the travelling road dispensary, based on Kuching. These follow fixed schedules which were revised by the Travelling Dispensary Superintendent during 1961, and travel along various rivers systems to otherwise inaccessible kampongs and longhouses.

Returns for the year are as follows:—

	<i>First Division</i>	<i>Base</i>	<i>No. of Patients Treated</i>
	Travelling Dispensary No. 2	Kuching	6,792
	Road Dispensary	Kuching	4,886
*Travelling Dispensary No. 3		Simunjan	5,000
	<i>Second Division</i>		
Nil		—	—
	<i>Third Division</i>		
	Travelling Dispensary No. 7	Sarikei	9,401
	Travelling Dispensary No. 8	Kanowit	4,824
	Travelling Dispensary No. 9	Kapit	7,417
	Travelling Dispensary No. 17	Belaga	1,523
	<i>Fourth Division</i>		
	Travelling Dispensary No. 11	Tatau	5,392
	Travelling Dispensary No. 12	Bintulu	7,430
	Travelling Dispensary No. 13	Bekenu	7,712
	Travelling Dispensary No. 14	Marudi	8,470
	<i>Fifth Division</i>		
	Travelling Dispensary No. 16	Limbang	4,520
		<hr/> 73,367	<hr/>

† A new dispensary replaced the old one at Kapit in December.

‡ A new dispensary at Marudi was opened at the end of June.

* Replaced by a static dispensary in December, 1961.

In addition to the above twelve travelling dispensaries, regular travelling is done by the hospital assistants in Lawas and Sundar static dispensaries, in the Fifth Division. There has been a decrease of 24,590 in the total number of patients treated by the travelling dispensaries, but this is more than offset by an increase of 35,343 in the number of patients treated at static dispensaries.

89. New dispensaries planned for Pusa in the Second Division, and Bekenu in the Fourth Division, were not built during the year, due to difficulties over siting and the supply of building materials. Both should be completed during 1962. Similar difficulties resulted in the postponement of the new dispensary at Belaga, which is to replace the old building there.

There are fifty-one *ulu* dressers throughout the country. These are distributed as follows:—

	<i>Number</i>	<i>Employed by</i>
First Division	7	1 Government
		5 Local Authority
		1 Community Development
Second Division	9	All Local Authority
Third Division	5	2 Government
		3 Local Authority
Fourth Division	26	24 Government
		2 Local Authority
Fifth Division	4	All Government
Total	<hr/> 51	

Most of these were visited by Divisional Medical Officers, and the Travelling Dispensary Superintendent, during the year.

X. SPECIAL HOSPITALS

(a) Sarawak Mental Hospital

90. The work done in his hospital during 1961 generally increased and out-patient services, run by members of the staff, were extended to the Third Division. Total admissions numbered 581 of which 206 or 35.5 per cent were re-admissions. Of the 375 new cases admitted, 197 were suffering from schizophrenia i.e. 53 per cent. It is now considered that the bulk of serious psychoses are now being seen at the Hospital or its out-patient clinics.

The 375 new admissions were classified as follows:—

Schizophrenia	197
Active psychosis	69
Organic psychosis	53
Neurosis (including psychopathy)	20
Epilepsy	9
Neurological disorder	7
Amentia	4
N.A.D.	16
Total	<hr/> 375

91. The number of patients in hospital on 31st December, 1960, was 301 and the number of admissions during the year was 581, making a total of 882 patients treated in hospital, during 1961. The number of remand patients decreased, whilst the number of voluntary patients showed a further increase. The percentage of voluntary patients admitted during the past four years has risen to the following way:—

1958	0%
1959	17%
1960	46%
1961	63%

This satisfactory trend indicates the changed attitude of the public to mental diseases and their treatment, and the growing confidence in the hospital services provided for the care and rehabilitation of those suffering from mental illness.

The senior staff of the hospital consisted of—

- 1 Specialist Alienist
- 2 Superintendents
- 1 Chief Hospital Assistant
- 2 Senior Hospital Assistants.

The second of the senior hospital assistants was appointed during the year, following his return from New Zealand where he was successful in obtaining the R.M.N. qualification. He is now understudying the Superintendent (Nursing), and shares in the work of rehabilitation.

92. In April, a regular out-patient clinic was established in Sibu, run by a team from the Sarawak Mental Hospital, which travels to Sibu to hold the clinic, every twelve days. This arrangement has worked very satisfactorily, and has in many cases, rendered unnecessary the admission of patients to hospital.

93. The number of new patients seen at the out-patient clinics during 1960 and 1961 was as follows:—

	1960	1961
Kuching	293	310
Sibu	—	290
Total	293	600

Only 13.8 per cent of those seen during the year were later admitted to hospital. Although the figures given of new out-patients include a good number of follow-up cases discharged from hospital, and although not all of these seen for the first time, would automatically have been admitted to hospital, via the courts, the above figures show that there has been a considerable saving in hospital bed facilities. Inpatients are now discharged much sooner than previously, due to the availability, in Kuching and Sibu, of these clinics. The

following table gives an idea of the development of the in-patient and out-patient services, during the past eight years:—

Year	Admissions to S.M.H.	Discharges (Including deaths)	New Out-patients (Kuching & Sibu)	Total Attendances at Out-patient Clinics
1954	112	90	—	—
1955	132	75	2	12
1956	159	110	13	40
1957	174	110	8	48
1958	195	120	19	88
1959	338	342	207	367
1960	429	405	290	1,743
1961	581	567	600	3,227

94. Trials of new drugs which became available during 1960, continued during 1961, and the effectiveness of the new anti-depressive drugs was definitely established. Often, the use of these drugs enabled the Specialist to dispense with E.C.T. altogether. A specially controlled trial was carried out, using a new phenothiazine derivative, on thirty selected patients, suffering from chronic schizophrenia with decrease in psychomotor activity. The results of this trial are still being analysed.

95. The Specialist Alienist published two papers on mental health work in Sarawak, during the year. Lectures were given by the Specialist Alienist on psychology, to an Adult Education Class, and by one of the superintendents, to nurses and health visitors in the Kuching General Hospital.

96. Two training courses for mental nurses were run during the year, and one group is due to sit the final qualifying examination at the beginning of 1962. One male nurse, trained locally in mental nursing, was chosen to proceed to the United Kingdom in 1962, for the full course of training leading to the R.M.N. qualification.

(b) The Rajah Charles Brooke Memorial Hospital

97. The treatment of all patients suffering from leprosy in Sarawak, Brunei and North Borneo, is carried out at the Rajah Charles Brooke Memorial Hospital at 13th Mile, Penrissen Road, near Kuching, which has accommodation for 520 patients. The hospital is run by a small staff of hospital assistants, with a lay Superintendent, in charge. The medical care of patients is supervised by the Medical Officer-in-Charge of the Kuching General Hospital who makes regular weekly visits.

98. As a further result of Dr. Ross-Innes's visit, an application was made to the British Leprosy Relief Association for assistance with the training scheme for hospital assistants, which he recommended, in order to allow a country-wide treatment campaign by hospital assistants, to be carried out in the static dispensaries. This application was successful, and the sum of £5,734 was approved by the Association, for the provision of a hostel and classroom, at the Rajah Charles Brooke Memorial Hospital. By the end of the year, a site had been chosen and levelled by patients, for building construction to begin early in 1962. It is hoped to start the first course in the new training centre, about September, 1962.

99. A further grant of £2,000 was generously approved by the British Leprosy Relief Association to equip a small operating theatre built by patients at the hospital, where minor operations can be performed by the Medical Officer. It is hoped that later in 1962, after the return from leave of a Medical Officer, who is visiting the Christian College and Hospital, Vellore to study reconstructive surgery under Professor Paul Brand, it will be possible to carry out some of this work, at the Rajah Charles Brooke Memorial Hospital. Arrangements have also been made for the senior hospital assistant at the hospital, to take a Colombo Plan course in physiotherapy in relation to leprosy, at the same institution in Vellore, in anticipation of the reconstructive surgery which it is hoped to carry out later. By that time, the services of a fully trained and experienced physiotherapist, from the United Kingdom, sponsored jointly by the British Red Cross Society and the British Leprosy Relief Association, should also be available. Another member of the staff is proceeding to Malaya early in 1962, to study the techniques of simple artificial limb manufacture, at the Sungei Buloh Settlement, Kuala Lumpur. He has already shown considerable aptitude in this field, without previous training.

100. The number of patients on the roll on the 1st January, 1961, was 395 and there were fifty-two admissions during the year. Fifty-seven patients were discharged and fifteen died, leaving a total of 375 on the roll on 31st December, 1961. i.e. twenty fewer than on 1st January, 1961. Of this total 153 were Chinese, 110 Ibans, and fifty Malays. There were sixty-nine North Borneo patients and two Brunei patients in hospital at the end of the year. Of the fifty-seven patients discharged (forty-one males and sixteen females), thirty-six were under the age of 40 years. There were fifteen deaths, the youngest being aged 44 years and the oldest 82 years. The average age of the patients who died was 61 years.

101. Development work continued, though on a smaller scale, than in previous years. A small operating theatre was provided and improvements were made to the hospital wards, which are now in charge of a trained hospital assistant, specially appointed for the purpose. This has led to a very definite improvement in the standard of treatment and care of hospitalised patients. A room behind the main ward has been converted into a sewing room, used by the female attendants and patients, and an old prison-cell block has been converted into a ward for patients suffering from tuberculosis.

102. A full-time cook with two assistants has been appointed to take charge of all the cooking facilities for patients in the hospital.

103. In April, the school teacher, who was previously an employee of the Education Department, was promoted to the new post of Warden, Rajah Charles Brooke Memorial Hospital and is now responsible for the education, general welfare, and supervision of treatment, of all children in the settlement.

104. A new feature has been the regular visits of a Dental Officer to give "on the spot" treatment instead of patients having to go to the Dental Clinic in Kuching.

105. Members of the Kuching Division of the British Red Cross Society continued their regular visits to the hospital, and the distribution of comforts and reading material. These visits are greatly appreciated by patients and staff, and by the children especially, at Christmas, when the annual Christmas party is held.

106. The Salvation Army continued to give invaluable help, by looking after babies born in hospital, until the parents are ready for discharge.

107. Clergy of different denominations visited regularly and held services. Gifts were received from the Chinese Chamber of Commerce, the Junior Chamber of Commerce, the Muslim Welfare Association, the Turtle Trust, the Social Welfare Council and the Dayak Association. All of these were greatly appreciated during the celebration of various festivals during the year.

108. His Excellency the Governor continued to give help and encouragement to the patients, and attended a leaving ceremony with Lady Waddell in May when he presented leaving certificates to thirty-one patients.

XI. SPECIALISED SERVICES

(a) Ophthalmic Services

109. It was not found possible during 1961 to recruit an ophthalmologist to replace Dr. Wallace, whose death was recorded in the 1960 Annual Report. As a result, the work of this section has been considerably restricted. Two visits were paid to Sarawak, by Army Ophthalmologists attached to the British Military Hospital in Singapore. In February, Major I. G. Johnston spent two days in Kuching, treating a total of forty-seven patients, and two days in Sibu, where eighty patients were examined and treated. In October, Lt. Colonel Craig visited Kuching for three days, when he examined sixty-two eye cases, and later in Sibu he saw 136 cases during a two-day visit there. Time did not permit of either specialist performing eye operations during their short visits, although thirty-one of the patients seen were reported as requiring "sight saving" surgery.

110. In the Health Centre, Kuching, the eye clinic continued to be run by a Senior Hospital Assistant, trained by the late Dr. Wallace, and it is very much to his credit that so much useful work has been done. During the year 3,472 new cases were treated. Figures for the years 1957-1961 are given below:—

Year	New Patients
1957	3,003
1958	2,972
1959	3,282
1960	3,743
1961	3,472

111. The main conditions treated were:—

Refractive errors	644
Inflammatory diseases	2,151
Injuries	371
Degenerative diseases	196
Congenital and hereditary	46
Neoplastic Conditions	32
Nutritional diseases	23
Blindness	9

112. The causes of blindness in the nine cases seen were as follows:—

Optic Atrophy	2
Keratomalacia	2
Sclerosis Cornea	1
Trachoma	1
Glaucoma	2
Panophthalmitis	1
	—
	9

113. The number of minor operations performed in the Clinic by the Hospital Assistant was as follows:—

Pterygium	90
Styes	88
Meibomian Cysts	106
Meibomian Abscess	129
Others	247
	—
	660

(b) Dental Services

114. One dental officer proceeded on leave, prior to retirement, leaving a total of four dental officers on the establishment at the end of 1961. Two were stationed in Kuching, one in Sibu and one in Miri. Permanent dental clinics are maintained at these centres, and two visits were also made by a dental officer, to Simanggang where a set of dental equipment has been installed in a room in the out-patient department, thus greatly improving working conditions for the visiting dentist.

115. One married dental nurse, who had previously been employed by the department, returned to Kuching and resumed duty in the clinic making a total of two dental nurses in Kuching and one in Sibu. There are also five dental mechanics employed in the two centres.

The total attendances at the three permanent clinics were as follows:—

	1960	1961
Kuching	29,841	33,022
Sibu	11,977	18,232
Miri	—	5,177

A breakdown of the services rendered is given below:—

	Kuching	Sibu	Miri	Total
Dental Extractions	38,961	17,269	4,126	60,356
Fillings	7,743	2,994	1,760	12,497
Dentures	526	363	35 }	1,103
Repairs to dentures	147	30	2 }	
Periodontal treatment	848	767	2	1,617
X-rays	174	69	169	412

All these figures, with the exception of dentures, show an increase on the 1960 figures.

116. The increasing demand for curative dental work continued to take up all the working time of the staff of this section, but one major advance in the field of public health dentistry, was the appointment by Government of a Fluoridation Advisory Committee. Following a dental survey, carried out by the dental unit, and as a result of analyses performed by the Public Works Department, the need for the fluoridation of water supplies was established and in November the first fluoridation project started at Simanggang.

(c) Pathological Laboratory Services

117. The Central Laboratory, which is also the training centre for laboratory technicians for the whole of Sarawak, is situated in the Kuching General Hospital grounds, and three subsidiary laboratories are maintained in Kuching, one at the Health Centre, one at the Sarawak Mental Hospital, and the third at the Rajah Charles Brooke Memorial Hospital. Divisional laboratories are attached to the hospitals in Simanggang, Sibu and Miri respectively.

118. The Central Laboratory is staffed by a Medical Officer-in-Charge, who is responsible for the laboratory services in all the hospitals, a Superintendent, and six trained laboratory technicians. There were twelve trainees in the laboratory at the end of the year, five in their first year of training and seven in their second. Three trained technicians were attached to the subsidiary laboratories in the Kuching area, two being attached to the Health Centre, and one spending half his time in the Sarawak Mental Hospital and half in the Rajah Charles Brooke Memorial Hospital, where the laboratory work has greatly increased.

119. In the Divisional laboratories, there were the following trained technicians at the end of the year:—

Simanggang	2 (Increase of 1 during 1961)
Miri	3 (One on temporary contract terms)
Sibu	4 (One due for posting to Sarikei early in 1962)

120. Systematic training of student technicians continued in the Central Laboratory during the year, under the supervision of the Colombo Plan technologist who gave courses of instruction in bacteriology, haematology, serology and histology to twelve trainees. A Colombo Plan gift of twelve Leitz microscopes greatly assisted in their training. In addition two microscopists for the Tuberculosis Control Project, also received specialised training in the laboratory diagnosis of tuberculosis, and a series of lectures was given to the second year Nurses' Training Class, on the correct methods of collecting and forwarding specimens for laboratory investigation. The Colombo Plan technologist, Mr. Thomas, has given invaluable aid, during the past two years in all these training courses, and the appreciation of the Sarawak Government to the Australian Government and to Mr. Thomas in particular, must be recorded.

121. A new general office was completed at the Central Laboratory in June, 1961, but otherwise, no new laboratory buildings or extensions were constructed. Space in all laboratories is now inadequate for the volume of work being done. An extension of the laboratory work in Simanggang Hospital was made possible by a reorganisation of the existing facilities, and a second technician was posted there for duty in May, 1961.

122. The following table gives a summary of the examinations carried out at each individual laboratory:—

Examinations	Central Laboratory	Health Centre Kuching	Sarawak Mental Hospital	R.C.B.M. Hospital	Simanggang Hospital	Sibu Hospital	Miri Hospital	Total
Haematology	16,450	7,349	1,356	626	11,539	18,167	9,787	65,274
Serology	18,516	—	288	10	1,862	9,495	2,885	33,056
Biochemistry	9,430	10,186	736	296	4,531	9,487	6,024	40,690
Parasitology	7,935	20,816	1,776	342	7,808	14,708	8,284	61,669
Bacteriology	13,511	12,469	428	7,769	4,812	11,241	8,471	59,317
Total	65,842	50,820	4,584	9,043	30,552	63,398	35,451	260,006

123. In addition to the above examinations, the production of crystalloid solutions continued. The central syringe service at the Central Laboratory was extended and it is hoped to supply the whole hospital with sterile syringes, by the end of 1962. Although all blood transfusion services are run by voluntary agencies, the technical work of grouping and compatibility testing is done by the Government laboratory service. In Kuching, the Kuching Division of the British Cross Society provided a new blood bank refrigerator for use in the Kuching General Hospital, and this has enabled further expansion of the transfusion service. In Sibu, a prominent local businessman presented the Lau King Howe Hospital with a blood bank refrigerator, which has greatly assisted the transfusion service there, also. The figure for the Kuching service are given below, as compared with 1960.

	1960	1961
Donors	638	1,004
Recipients	573	954

124. The main event affecting the Laboratory Service during the year, was the cholera outbreak. In Kuching 1,100 stools were examined, of which ninety-six were found to contain *V. cholera*. In Sibu thirty-five positive stools were found, out of a total of 859 examined.

(d) X-ray Services

125. There are X-ray units attached to the General Hospitals in Kuching, Sibu, Miri and Simanggang, and the Chest Clinic, Kuching. In addition a mobile X-ray unit was installed in the new hospital in Limbang during the year. The 100 m.m. Odelca Camera, formerly in the Chest Clinic, Kuching, was transferred to the General Hospital, Kuching, and replaced by a new 70 m.m. unit. A second 70 m.m. camera was sent to the Chest Clinic, Sibu, to replace an old 35 m.m. unit. A new mobile X-ray machine has been ordered for the new Sarikei Hospital, which is due to open early in 1962, and provision has been made in the 1962 estimates for the purchase of new equipment for the Lau King Howe Hospital, Sibu.

126. The personal monitoring service, introduced in 1960, to ensure that none of the staff are exposed to excessive doses of radiation, was continued during the year, and extended to cover all units.

127. A summary of the work done in the various X-ray departments is shown below:—

	<i>No. of Patients X-rayed</i>
Kuching General Hospital	5,559
Chest Clinic, Kuching (children)	6,483
Chest Clinic, Kuching (adults)	8,872
Simanggang General Hospital	3,087
Lau King Howe Hospital, Sibu (large)	10,736
Lau King Howe Hospital, Sibu (35 m.m.)	1,774
Miri General Hospital	5,095

128. Returns from Kuching General Hospital and the Lau King Howe Hospital, Sibu, indicate the variety of work done in their X-ray departments:—

	<i>Nature of film</i>	<i>No. of examinations</i>	
		Kuching	Sibu
1. Chest	...	3,015	4,871
2. Bone	...	1,870	1,893
3. Gall Bladder	...	104	157
4. Genito-urinary	...	166	199
5. Gastro-intestinal	...	441	230
6. Abdomen (Straight)	...	105	300
7. Obstetrical	...	99	72
8. Sinuses	...	41	62
9. Miscellaneous	...	32	27
Total		5,873	7,811

129. The staff of the X-ray Service, during the year, was as follows:—

Kuching General Hospital	$\left\{ \begin{array}{l} 1 \text{ Radiographer} \\ 1 \text{ Senior Technician} \\ 2 \text{ Technicians} \end{array} \right.$
Chest Clinic, Kuching	1 Technician
Simanggang General Hospital	1 Technician
Lau King Howe Hospital, Sibu	$\left\{ \begin{array}{l} 3 \text{ Technicians} \\ 1 \text{ Nurse} \end{array} \right.$
Miri General Hospital	$\left\{ \begin{array}{l} 2 \text{ Senior Technicians} \\ 1 \text{ Technician} \end{array} \right.$

130. One member of the staff attended a nine month's course on practical radiography in Melbourne, Australia during the year, and a second is due to go there, early in 1962.

(e) Physiotherapy Services

131. There is a small physiotherapy department in the Kuching General Hospital which is run by members of the X-ray staff. A student physiotherapist is at present undergoing a full course of training in physiotherapy in New Zealand, under the Colombo Plan. Meanwhile the British Red Cross Society and the British Leprosy Relief Association are jointly sponsoring the appointment of an experienced physiotherapist from the United Kingdom for a two-year tour of service in Sarawak. She is due to arrive about the middle of 1962, and will assist Government at the Rajah Charles Brooke Memorial Hospital and in the setting up of a physiotherapy section, in addition to her Red Cross duties.

(f) Surgical Services

132. There were three Surgical Specialists on the Establishment during the year, one in Kuching, one in Sibu and the third in Miri. In Simanggang the Medical Officer-in-Charge of the hospital undertakes emergency surgery, and such other surgical work as he has time for.

133. The total number of operations performed at the four main hospitals, compared with the three previous years was as follows:—

	1958	1959	1960	1961
Kuching General Hospital	2,709	2,992*	2,684*	2,687
Lau King Howe Hospital, Sibu	1,945	3,379	3,046	3,890
Simanggang General Hospital	260	253	359	256
Miri General Hospital	—	—	2,117	2,344
	4,914	6,624	8,206	9,177

134. The most common major operations performed were, as in previous years, for acute appendicitis, perforated peptic ulcers, inguinal herniae, and thyroid enlargement. In the field of minor surgery traumatic work predominated. Fractures were very common especially in the First and Third Divisions. The Fracture Clinic in Kuching registered 163 new cases during the year.

135. Three hospital assistants attended Colombo Plan courses of training in operating theatre techniques, in Australia. They have all benefited considerably, from the experience gained overseas.

(g) Obstetrical Services

136. Compared with 1960, there was an overall increase of 474 in the total hospital deliveries in the country during 1961. Details are as follows:—

	1960	1961
Kuching General Hospital	2,586	2,905
Lau King Howe Hospital, Sibu	1,097	987
Simanggang General Hospital	183	232
Miri General Hospital	330	546
Total	4,196	4,670

* Figures given in 1959 and 1960 Annual Reports included operations performed at the Health Centre.

In addition 639 district deliveries were conducted by the domiciliary midwifery service in Kuching; and 576 in Sibu, making a total of 1,215 in all, during the year, in these two municipal areas.

137. The extent to which the hospitals catered for the obstetric abnormality, is shown in the following table:—

	<i>Kuching</i>	<i>Sibu</i>	<i>Simanggang</i>	<i>Miri</i>
Caesarian Section	47	50	6	26
Forceps Delivery	64	35	5	19
Manual Removal of Placenta	48	14	7	10
Plural births	34	23	1	9
Post partum haemorrhage	88	2	11	47
Toxaemias of Pregnancy and the puerperium	82	3	3	27
Abortions	356	327	43	93
Stillbirths	56	39	4	10

138. Maternal deaths in the four hospitals, totalled twenty, made up of six in Kuching, nine in Sibu, two in Simanggang and three in Miri. The majority of these were emergency admissions from distant parts of the country, often moribund by the time they reached hospital.

(h) Maternal and Child Health Services

139. There was an increase in attendances at most Maternal and Child Health clinics during the year, and particularly so in the numbers of children seen at the Child Health Clinics. Local Authorities in many parts of Sarawak run clinics staffed by trained midwives, and forms were issued during the year so that the midwives could keep a record of deliveries and of mothers and children seen. This record keeping when it is established will be of great value in assessing the progress of these services in the rural areas. These forms are common to Government and Local Authority clinics.

140. The Maternal and Child Health Services in Kuching and district continued to be administered by Government. Two clinics in the Rural District Council area were successfully combined, and one small clinic in the Urban area was closed, the patients from this transferring to the Central Clinic. This leaves fifteen clinics in Kuching Urban and Rural areas. Staff from Kuching supervised by a Health Sister continued to visit the rural clinics regularly.

141. At Sibu and Sarikei in the Third Division, the Local Authorities are responsible for Maternal and Child Health Services. The Government Health Sister based on Sibu continued to give part-time supervision to the Sibu Urban District Council clinics, and overall supervision of all other Local Authority midwives in the division. She also visited private maternity homes in an advisory capacity.

142. In Miri and Simanggang Maternity and Child Health Clinics were held in the Government Hospitals under the supervision of the nursing sisters.

143. Returns for the fifteen Kuching District Maternity and Child Health clinics are as follows:—

	<i>Child Health attendances</i>	<i>Ante-natal attendances</i>	<i>Post-natal attendances</i>	<i>Total attendances</i>
1959	64,111	28,452	4,531	97,094
1960	65,735	33,818	5,127	104,680
1961	71,604	37,699	6,019	115,322

144. Returns for the Sibu Urban District Council Maternal and Child Health Clinics are as follows:—

	<i>Child Health attendances</i>	<i>Ante-natal attendances</i>	<i>Post-natal attendances</i>	<i>Total attendances</i>
1959	36,509	14,239	2,964	53,712
1960	40,001	16,072	3,660	56,073
1961	50,787	15,516	5,648	71,951

145. The Sibu Urban District Council midwives conducted 576 deliveries, an increase of 176 over the previous year. The work of the Sibu Rural District Council midwives also increased from 327 in 1960 to 452 for 1961.

146. An extract from the Annual Report of the District Officer, Saribas, in the Second Division shows that there is an increasing interest in Maternal and Child Health Services in the rural areas and that these services are proving of value.

He writes—

“May, 1961, saw the opening of the District Council’s ante-natal clinic in the Government dispensary and the number of deliveries was a record of 152. The population of the district is steadily rising due to natural increase. This has been the result of a fall in the infant mortality rate.”

147. Returns for the Sarakei District Council Clinic are as follows:—

	<i>Child Health attendances</i>	<i>Ante-natal attendances</i>	<i>Post-natal attendances</i>	<i>Total attendances</i>
1959	1,752	2,407	190	4,349
1960	3,586	4,409	510	8,505
1961	8,025	4,565	578	13,168

(i) Medical Stores Services

148. This section consists of:

- (a) The Central Medical Store, Kuching.
- (b) The Divisional Medical Store, Sibu.
- (c) The Divisional Medical Store, Miri.

All stores indents other than local purchase orders are prepared and despatched by the Stores Department, Kuching, but in many instances items supplied against

these indents are delivered direct to the divisional store, Sibu, from overseas. It is unfortunately not practical to do this in the case of Miri or Simanggang in view of shipping difficulties. Internal supplies for certain parts of the Second Division are more easily issued from Kuching, and so by arrangement, Divisional Medical Officer, Second Division, after checking such indents, passes them to the Medical Superintendent, Central Stores for issue.

149. The post of Pharmacist remained vacant, throughout the year, as the prospective candidate proceeded to Singapore for higher studies, during 1961. Towards the end of the year, a Chief Dispenser proceeded on leave, prior to retirement. One trained Dispenser was sent to Australia to undergo a six months' course of training in practical dispensing under the Colombo Plan, and returned to Kuching in November. Three probationer dispensers passed their qualifying examination during the year and were promoted to the grade of Trained Dispenser.

150. Construction of the new Central Medical Store at Tanah Puteh in the new Kuching Port Area, started towards the end of the year, and the building should be ready for occupation about mid 1962. Meanwhile, this section is still housed in cramped and otherwise inadequate building in the Kuching General Hospital compound. It orders, stores and distributes drugs, dressings and other medical equipment for the whole territory except Sibu. It also manufactures a variety of medicinal products, in its laboratory. During the year, 27,653,700 tablets of twenty-one different types were produced, and in addition 3,213 lbs. of ointments, 2,297 gallons of liquid medicines, and 850 lbs. of medicinal powders were dispensed. When the new manufacturing laboratories are completed, it is hoped to be able to increase the quantity of locally produced items.

151. The Senior Dispenser in charge of Sibu Medical Store, is also responsible, under the Divisional Medical Officer, for the operation of the Salt iodisation plant there. During 1961, 3,717 bags weighing 986,560 pounds of common salt were iodised and exchanged for bags of uniodised salt deposited by dealers. The green-tinted, iodised salt is now available throughout the Third Division, and the Divisional Medical Officer has reported that in the few cases when white, uniodised salt was found on sale, the suppliers readily co-operated and changed over to green salt.

XII. VOLUNTARY ORGANISATIONS

152. As in previous years, *the Social Welfare Council* has continued to function as the central welfare agency, to which Government funds for welfare work are paid over for distribution to various charitable organisation in Sarawak.

153. *The Sarawak Branch of the British Red Cross Society* has continued its work of relief for victims of fires and other disasters, the training of first-aid workers, the organisation of a blood transfusion service in Kuching, Simanggang and Miri, and the running of courses of training for blind persons. The hostel in Kuching for discharged hospital patients, and for the relatives of those admitted to hospital from distant places, has also continued to give valuable help.

154. *The Anti-Tuberculosis Society of Sarawak (A.T.A.S.)* has maintained its interest in the anti-tuberculosis project which started in Kuching in March, 1961. Funds have been provided, for alterations to the A.T.A.S. Chest Clinic, and the Society has appointed an honorary Almoner. The Convalescent Home near

Kuching, was taken over completely, by Government, during the year, and is now run as an annexe of the General Hospital. Full use has been made of the two tuberculosis longhouses at Marudi and Bintulu, maintained by the Miri branch of A.T.A.S.

155. A *Sarawak Society for the Blind* was formally inaugurated in December, 1960. During 1961, plans were drawn up for a training centre for the blind to be built on a site made available by Government, near Kuching. Funds for this centre, are now being collected and it is hoped to start building in 1963. The Society also started a campaign for the prevention of blindness, and distributed posters, and supplies of antibiotic eye ointment to selected longhouses in the Second Division. The ointment was donated by the Catholic Relief Services of America. If this pilot project, which is being supervised by the Divisional Medical Officer, Second Division, and the Officer-in-Charge of the Lemanak Community Development Project, is successful, the Society plans to extend its activities to other parts of Sarawak.

156. *The Rotary Club of Kuching* has raised the sum of \$5,000 to pay for the training of an instructor of the blind, in Malaya, and a suitable trainee was selected and sent to Kuala Lumpur, during the year.

157. As in previous years, *the Salvation Army* has continued its invaluable help in maintaining homes for boys and girls, and for the aged, and has also helped considerably by looking after the babies born of leprous mothers, while the latter are undergoing treatment in the Rajah Charles Brooke Memorial Hospital.

Other Voluntary Agencies

158. In Sibu, the Sibu Nursing Home and McCarthy Lodge are both run by a local charitable organisation called the Sibu Benevolent Society. The former is for aged men including chronic tuberculosis cases, while the latter institution caters for old people of both sexes. Government doctors visit these institutions regularly. In Miri, there is also a home for aged paupers run by a voluntary relief committee.

159. In Kuching, a Home for the Aged is maintained in the Sarawak Social Welfare Council. It is sited on the Serian road, about twelve miles from Kuching. The inmates are all destitute persons. Accommodation exists for 130 such people and includes a sick bay with thirty beds. This sick bay is run with the help of Roman Catholic nuns, and the Home is visited regularly by the Divisional Medical Officer, First Division.

160. Other organisations such as the various Chambers of Commerce, Chinese, Dayak and Malay Associations and the Corona Society have also helped in different ways in hospitals, and other medical institutions.

Appendix I

**MORBIDITY RETURN FOR IN-PATIENTS TREATED IN THE KUCHING,
SIMANGGANG, SIBU AND MIRI HOSPITALS**

**INTERNATIONAL CLASSIFICATION OF DISEASES
(INTERMEDIATE LIST)**

		<i>Cases</i>	
A	1	Tuberculosis of respiratory system	908
A	2	Tuberculosis of meninges and central nervous system	52
A	3	Tuberculosis of intestines, peritoneum, and mesenteric glands	24
A	4	Tuberculosis of bones and joints	22
A	5	Tuberculosis, all other forms	43
A	6	Congenital syphilis	—
A	7	Early syphilis	—
A	8	Tabes dorsalis	2
A	9	General paralysis of insane	2
A	10	All other syphilis	7
A	11	Gonococcal infection	10
A	12	Typhoid fever	193
A	13	Paratyphoid fever and other <i>Salmonella</i> infections	4
A	14	Cholera	134
A	15	Brucellosis (undulant fever)	—
A	16	Dysentery, all forms	658
A	17	Scarlet fever	—
A	18	Streptococcal sore throat	5
A	19	Erysipelas	2
A	20	Septicaemia and pyaemia	6
A	21	Diphtheria	126
A	22	Whooping cough	8
A	23	Meningococcal infections	9
A	24	Plague	—
A	25	Leprosy	27
A	26	Tetanus	33
A	27	Anthrax	—
A	28	Acute poliomyelitis	12
A	29	Acute infectious encephalitis	23
A	30	Late effects of acute poliomyelitis and acute infectious encephalitis	22
A	31	Smallpox	—
A	32	Measles	42
A	33	Yellow fever	—
		<i>Carried forward</i>	
		2,374	

Appendix I—(Contd.)

		<i>Cases</i>
	<i>Brought forward</i>	<i>2,374</i>
A 34	Infectious hepatitis	90
A 35	Rabies	—
A 36	Typhus and other rickettsial diseases	—
A 37	Malaria	39
A 38	Schistosomiasis	—
A 39	Hydatid disease	—
A 40	Filariasis	58
A 41	Ankylostomiasis	63
A 42	Other diseases due to helminths	243
A 43	All other diseases classified as infective and parasitic	133
A 44	Malignant neoplasm of buccal cavity and pharynx	18
A 45	Malignant neoplasm of oesophagus	5
A 46	Malignant neoplasm of stomach	46
A 47	Malignant neoplasm of intestine, except rectum	8
A 48	Malignant neoplasm of rectum	11
A 49	Malignant neoplasm of larynx	7
A 50	Malignant neoplasm of trachea, bronchus and lung, not specified as secondary	28
A 51	Malignant neoplasm of breast	10
A 52	Malignant neoplasm of cervix uteri	37
A 53	Malignant neoplasm of other and unspecified parts of uterus	12
A 54	Malignant neoplasm of prostate	5
A 55	Malignant neoplasm of skin	11
A 56	Malignant neoplasm of bone and connective tissue	16
A 57	Malignant neoplasm of all other and unspecified sites	36
A 58	Leukaemia and aleukaemia	15
A 59	Lymphosarcoma and other neoplasm of lymphatic and haematopoietic system	24
A 60	Benign neoplasm and neoplasms of unspecified nature	169
A 61	Non-toxic goitre	37
A 62	Thyrotoxicosis with or without goitre	40
A 63	Diabetes mellitus	108
A 64	Avitaminosis and other deficiency states	167
A 65	Anaemias	168
A 66	Allergic disorders; all other endocrine, metabolic, and blood diseases	168
A 67	Psychoses	99
A 68	Psychoneuroses and disorders of personality	129
	<i>Carried forward</i>	<hr/> <i>4,374</i>

Appendix I—(Contd.)

		<i>Brought forward</i>	4,374
		<i>Cases</i>	
A 69	Mental deficiency		17
A 70	Vascular lesions affecting central nervous system		89
A 71	Non-meningococcal meningitis		3
A 72	Multiple sclerosis		2
A 73	Epilepsy		50
A 74	Inflammatory diseases of eye		135
A 75	Cataract		29
A 76	Glaucoma		11
A 77	Otitis media and mastoiditis		69
A 78	All other diseases of the nervous system and sense organs		123
A 79	Rheumatic fever		59
A 80	Chronic rheumatic heart disease		46
A 81	Arteriosclerotic and degenerative heart disease		85
A 82	Other diseases of heart		119
A 83	Hypertension with heart disease		79
A 84	Hypertension without mention of heart		45
A 85	Diseases of arteries		14
A 86	Other diseases of circulatory system		111
A 87	Acute upper respiratory infections		238
A 88	Influenza		72
A 89	Lobar pneumonia		47
A 90	Bronchopneumonia		248
A 91	Primary atypical, other, and unspecified pneumonia		40
A 92	Acute bronchitis		165
A 93	Bronchitis, chronic and unqualified		103
A 94	Hypertrophy of tonsils and adenoids		99
A 95	Empyema and abscess of lung		4
A 96	Pleurisy		10
A 97	All other respiratory diseases		128
A 98	Diseases of teeth and supporting structures		69
A 99	Ulcer of stomach		153
A 100	Ulcer of duodenum		96
A 101	Gastritis and duodenitis		56
A 102	Appendicitis		271
A 103	Intestinal obstruction and hernia		186
A 104	Gastro-enteritis and colitis, except diarrhoea of the newborn		582
A 105	Cirrhosis of liver		50
A 106	Cholelithiasis and cholecystitis		100
		<i>Carried forward</i>	8,177

Appendix I—(Contd.)

		<i>Cases</i>
	<i>Brought forward</i>	8,177
A 107	Other diseases of digestive system	311
A 108	Acute nephritis	114
A 109	Chronic, other, and unspecified nephritis	87
A 110	Infections of kidney	80
A 111	Calculi of urinary system	128
A 112	Hyperplasia of prostate	15
A 113	Diseases of breast	35
A 114	Other diseases of genito-urinary system	814
A 115	Sepsis of pregnancy, childbirth, and the puerperium	60
A 116	Toxaemias of pregnancy and the puerperium	98
A 117	Haemorrhage of pregnancy and childbirth	167
A 118	Abortion without sepsis or toxæmia	767
A 119	Abortion with sepsis	58
A 120	Other complications of pregnancy, childbirth, and the puerperium	517
A 121	Infections of skin and subcutaneous tissue	681
A 122	Arthritis and spondylitis	78
A 123	Muscular rheumatism and rheumatism unspecified	26
A 124	Osteomyelitis and periostitis	29
A 125	Ankylosis and acquired musculoskeletal deformities	2
A 126	All other diseases of skin and musculoskeletal system	114
A 127	Spina bifida and meningocele	—
A 128	Congenital malformations of circulatory system	41
A 129	All other congenital malformations	82
A 130	Birth injuries	—
A 131	Postnatal asphyxia and atelectasis	—
A 132	Infections of the newborn	15
A 133	Haemolytic disease of the new-born	4
A 134	All other defined diseases of early infancy	131
A 135	Ill-defined diseases peculiar to early infancy, and immaturity unqualified	60
A 136	Senility without mention of psychosis	4
A 137	Ill-defined and unknown causes of morbidity and mortality	1,441
AE 138	Motor vehicle accidents	173
AE 139	Other transport accidents	39
AE 140	Accidental poisoning	14
AE 141	Accidental falls	195
AE 142	Accident caused by machinery	44
AE 143	Accident caused by fire and explosion of combustible material	28
AE 144	Accident caused by hot substance, corrosive liquid, steam and radiation	72
	<i>Carried forward</i>	14,701

Appendix I—(Contd.)

	<i>Brought forward</i>	14,701
	<i>Cases</i>	
AE 145	Accident caused by firearm	13
AE 146	Accidental drowning and submersion	5
AE 147	All other accidental causes	94
AE 148	Suicide and self-inflicted injury	6
AE 149	Homicide and injury purposely inflicted by other persons (not in war)	40
AN 138	Fracture of skull	38
AN 138	Fracture of spine and trunk	80
AN 140	Fracture of limbs	355
AN 141	Dislocation without fracture	29
AN 142	Sprains and strains of joints and adjacent muscle	36
AN 143	Head injury (excluding fracture)	125
AN 144	Internal injury of chest, abdomen, and pelvis	30
AN 145	Laceration and open wounds	617
AN 146	Superficial injury, contusion and crushing with intact skin surface	165
AN 147	Effects of foreign body entering through orifice	23
AN 148	Burns	148
AN 149	Effects of poisons	59
AN 150	All other and unspecified effects of external causes	46
	Total	16,610

Appendix II

MORBIDITY RETURN FOR OUT-PATIENTS TREATED IN THE GOVERNMENT DISPENSARIES AND HOSPITAL OUT-PATIENT DEPARTMENTS IN ALL DIVISIONS

TOTAL NEW CASES 1961

<i>International List Classification Nos.</i>	<i>Disease or Condition</i>	<i>No. of cases</i>
001-008	Tuberculosis of lung	1,327
030-035	Gonorrhoea	676
045-048	Dysentery, all forms	5,378
055	Diphtheria	159
056	Whooping Cough	1,550
060	Leprosy	25
073	Yaws	1,806
080	Paralytic Poliomyelitis	21
085	Measles	1,051
110-117	Malaria	937
123-130	Worm Infestations	33,294
036-138	All other diseases classed as infective or parasitic including fevers of unknown origin	21,993
140-239	Neoplasms (Tumours)	491
240-245	Allergic Disorders (asthma, urticaria, etc.)	7,448
250-254	Diseases of Thyroid	1,378
280-286	Avitaminosis and other deficiency states	16,562
290-293	Anaemias	14,305
300-318	Mental Disorders	424
370	Conjunctivitis	9,108
371-388	Other diseases of the eye	4,889
389	Blindness	84
390-398	Diseases of ear	8,440
470	Common cold	33,573
473	Tonsillitis, acute	7,706
480-483	Influenza	8,352
490-493	Pneumonia	1,642
500-502	Bronchitis	15,134
471-527	Other Respiratory Diseases	19,735
540-545	Diseases of the stomach	11,599
560-561	Hernia	427
571-764	Diarrhoea and enteritis	25,978
530-587	Other Diseases of Digestive System	23,078
600-609	Diseases of urinary system (excluding Gonorrhoea see 030-035	5,184
	<i>Carried forward</i>	283,754

Appendix II—(Contd.)

<i>International List Classification Nos.</i>	<i>Disease or Condition</i>	<i>No. of cases</i>
	<i>Brought forward</i>	283,754
610-637	Diseases of genital organs	1,721
640-689	Complications of pregnancy	1,975
690-692	Boils, abscesses	17,430
700-716	Other Diseases of skin	41,790
720-727	Arthritis and Rheumatism	13,289
795	Diseases, cause unknown	18,852
E810-E845	Road accidents	1,111
E850-E858	Water transport accidents	56
E916	Accidents caused by fire	1,268
E800-E999	Other accidents	18,090
E870- 895	Poisonings	225
	Total	399,561

MALARIA IN SARAWAK — 1961

I. INTRODUCTION

Sarawak lies on the northwest coast of the island of Borneo and has a total population of 744,529. The main town is Kuching the capital, which lies in the First Division, and has a population of 51,000.

Of the total population, 571,141 persons are considered to lie within the area in the consolidation phase of eradication. A total of 173,388 persons is considered to be in the attack phase area.

There are Five Divisions in Sarawak, of which the Fourth and Fifth are considered as one operational unit. The Malaria Eradication Project is operated by the Medical Department of Sarawak on a divisional basis with control from Headquarters. Assistance regarding technical aspects of the Project is received from a WHO Advisory Team, consisting of a Senior Malaria Adviser, a Sanitarian, and an Entomologist. The Sanitarian was appointed in June, 1961, as a replacement for the Malaria Adviser who left in March.

II. PROGRAMME SINCE ITS INCEPTION

After preliminary surveys by WHO personnel, operations against malaria commenced as a Pilot Project in 1953. The results were encouraging, and so this pilot project was gradually expanded to cover all areas of Sarawak and was then known as the Sarawak Malaria Control Project. During 1960, it was decided that every effort should be made to eradicate malaria and thus the scheme is now described as the Sarawak Malaria Eradication Project.

III. PROGRAMME DURING 1961

The organisation of operations is given in Annex I, and differs a little from that shown for the previous year. The central malaria laboratory now forms part of the Central Laboratory, and a separate central entomological unit for special surveys has been established. The Specialist Health Officer is now known as the Assistant Director of Medical Services (Health) and he is responsible to the Director of Medical Services for the Project. The WHO Advisory team has relinquished all executive responsibility.

(1) Malariaometric findings

Spleen surveys are no longer carried out in Sarawak. Parasite surveys are used to assess the progress of the project in all areas, and to determine the extent of the problem remaining. The results of such surveys are given in Annex II.

(2) Entomological findings

Known vectors are *A. leucosphyrus* and *A. barbirostris* while *A. sundaeicus* is certainly a vector in certain coastal areas. *A. balabacensis* occurs in the north eastern areas of Sarawak, and its status as a vector is uncertain at present.

The question of *A. letifer* being a vector has still to be determined. A summary of entomological findings is included in Annex III.

Appendix IV—(Contd.)

(3) Spraying operations

Total coverage was confined to seven districts only, and localised spraying was carried out in the remaining thirteen districts. The cycle of spraying is twice yearly, using 75 per cent DDT (w.d.p.) at a strength of 2 gms. per square metre. In a small area in the First Division where *A. sundaicus* is a vector, Dieldrin 50 per cent (w.d.p.) is used twice yearly in a strength of 0.6 gms. per square metre. A summary of spraying statistics is given in the following table:—

TABLE I
SUMMARY OF SPRAYING STATISTICS — 1961

Sprayed Structures		Structures unsprayed because		Insecticide used
Houses	Farmhuts	Refused	Other reasons	
57,200	13,859	610	2,126	19,643 kilos D.D.T. 75% w.d.p.
274	40	5	4	65.9 kilos Dieldrin 50% w.d.p.

(4) Surveillance operations

Passive case detection exists in all areas of the country but the degree of access of the rural population to the passive surveillance units varies according to topographical conditions.

Active case detection covers all areas of the country. The operational unit for active case detection is determined by the division of the country into sectors, based on the administrative districts which lie within a division. There are seventy-two active case detection sectors in Sarawak. The results are shown in Annex II.

(5) Investigation and Treatment

During the year this aspect of the project has continued to develop in accordance with the increase in surveillance activities. There is still an investigation team in each division, remembering that the Fourth and Fifth are treated as a single entity, and a Headquarters team has been established for special surveys.

The duties of an investigation team are to follow-up proven cases of malaria including the taking of histories, the tracing of contacts, related entomological work, and the taking of all blood samples considered necessary.

In the investigation of proven cases of malaria, the following order of priority has been followed—

- (i) Infection in infants.
- (ii) *P. falciparum* infections.
- (iii) Occurrence of a case in an area rendered free of malaria.
- (iv) All other cases.

IV. PLANS FOR THE FUTURE

The 1962 programme provides for the following:—

- (1) Continuation of residual spraying in all areas other than those where it has been clearly demonstrated that interruption of transmission has been achieved.
- (2) Spraying on a selective basis in areas where interruption of transmission has been achieved except in isolated villages.
- (3) Continuation of active and passive case detection in all areas.
- (4) Continuation and expansion of investigational activities.
- (5) Radical treatment where possible of all known cases of malaria occurring in Sarawak.
- (6) A close watch on the situation in areas bordering on Kalimantan with special reference to those places where regular movement of people across the frontier is known to occur for trading or other purposes.
- (7) The training of local personnel as opportunity permits in an endeavour to generally raise standards.

V. ITEMS OF SPECIAL INTEREST

(1) Communications and Logistics

The extension of active case detection, investigation, and treatment operations has naturally led to an increase in the problems connected with such activities.

The costs involved in the provision and maintenance of hulls and outboard engines for the many sectors have to be estimated in advance. It is difficult to do this because of the varying operative conditions pertaining to the project, some of which shorten the life of a boat or engine very considerably. The project employs large, medium, and small hulls.

In addition the project uses land transport where feasible and also existing air services for the transport of emergency supplies and blood slides.

(2) Nomadic and Semi-nomadic groups

These groups continue to constitute a problem because their mode of life makes it difficult to ensure adequate control.

Occasionally a group will settle in one place for an indefinite period of time. The group will retain contact with other nomadic groups, and at the same time establish contact with neighbouring settled communities. If the area is one where transmission has been interrupted, then the risk of its reintroduction arises.

Advantage has been taken of trade meetings, which are attended by nomadic groups, to carry out mass blood surveys and mass treatment.

(3) Border traffic

This remains a problem in relation to the scheme for the eradication of malaria in Sarawak. The problem is twofold:—

- (i) Migrants entering Sarawak from Kalimantan with a parasite rate ranging from 0 to 15 per cent.
- (ii) Healthy individuals crossing the border to visit relatives and perhaps returning infected.

(4) Inter-territorial co-operation

There is still insufficient liaison between the British Borneo territories and Kalimantan. It is important that this is fostered in every possible way.

VI. TECHNICAL ITEMS

(1) Insecticides

Some details regarding use and consumption have been given in Table I above, where spraying operations are described.

The quality of insecticide miscibility and deposition has been satisfactory.

(2) Spraying equipment

The project uses Taiwan hand-pressure sprayers. This equipment with the exception of pressure gauges is satisfactory. There is still no simple solution to the problem of a relatively cheap pressure gauge for use with the pump.

(3) Microscopy

Decentralisation with the aim of decreasing the time-interval between collection and examination of slides was completed in the early part of 1961.

(4) Drug administration

The use of drugs is restricted to the treatment of known and suspected cases. The difficulty experienced in devising a system for the radical treatment of proven cases with a minimum of delay between the collection of blood from such persons and their treatment still applies, particularly to isolated *P. vivax* and *P. malariae* infections in remote areas.

(5) Administration

Since October, 1960, the Sarawak Government has assumed full responsibility for the administrative and technical direction of the programme. The WHO staff relieved of executive responsibility now constitutes an advisory team to the Director of Medical Services, Sarawak.

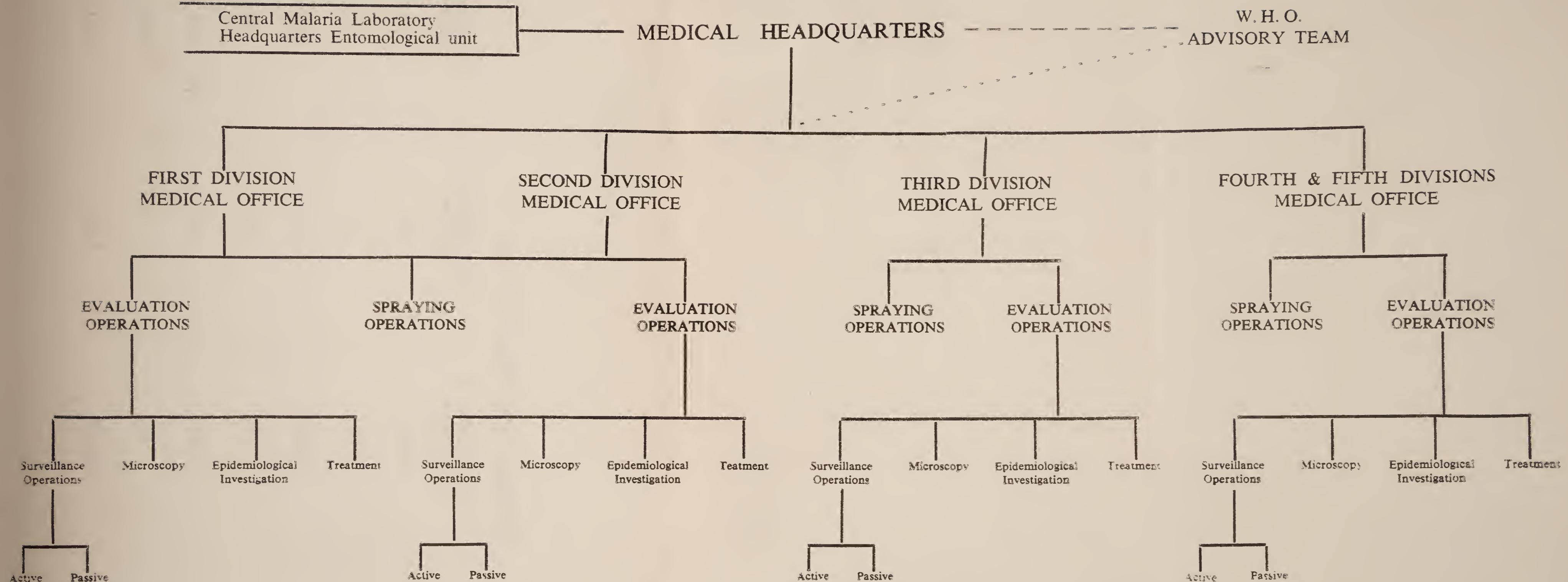
(6) Personnel including Training

Under the administrative changes referred to in paragraph (5) above, executive control has been strengthened by the assumption of technical and administrative responsibility by Divisional Medical Officers responsible to Headquarters.

With the reduction in spraying operations in certain areas of the country, it has been possible to reduce the number of staff engaged in the Project. Training has been given special emphasis, and a special course for all investigators was held in Kuching during the third quarter of the year. Routine courses of training for spraymen and canvassers were also carried out in each division.

THE SARAWAK MALARIA ERADICATION PROJECT

ORGANIZATION CHART



Annex II

SURVEILLANCE OPERATIONS 1961

Type of activity	Total number of films taken	Total number of positives	Percentage of positives
Active case detection ...	193,933	394	0.20%
Passive case detection ...	43,457	360	0.83%
Mass blood surveys ...	20,067	98	0.49%
Epidemiological Surveys ...	12,701	128	1.01%
Follow-up (of confirmed cases)	10,017	156	1.56%
Special Surveys ...	434	3	0.69%
TOTAL ...	280,609	1,139	0.41%

Annex III

SUMMARY OF ENTOMOLOGICAL FINDINGS

Vector

In April the WHO Entomologist visited Telok Melanau, Telok Serabang, and Sampadi in Lundu district for the purpose of checking the susceptibility of *A. sundaicus* to D.D.T. and Dieldrin. He also wished to study the binomics of this vector. Unfortunately catches for this species were so low, that it was not possible to conduct the required tests.

A. letifer has been found in areas of transmission but no sporozoites or oocysts have been seen in the 491 mosquitos of this species which have been dissected.

Night adult captures

12,476 anophelines of thirteen species were taken in 7,214 man-hours of indoor and outdoor collection at night giving a density of 1.72 anophelines per man-hour.

These captures are summarised below:—

<i>Species</i>	<i>Number taken</i>
<i>A. barbirostris</i>	4,631
<i>A. leucosphyrus</i>	237
<i>A. balabacensis</i>	106
<i>A. sundaicus</i>	39
<i>A. letifer</i>	3,010
<i>Non vectors*</i>	4,453

Daytime adult captures (outdoors)

A considerable amount of time was spent searching outdoors during the daytime for anophelines, though unfortunately no record of the time spent was kept. A fairly large number of anophelines were found in these searches.

<i>Species</i>	<i>Bitting</i>	<i>Resting</i>	<i>Total</i>
<i>A. barbirostris</i>	80	117	197
<i>A. letifer</i>	45	35	80
<i>A. tesselatus</i>	3	21	24
<i>A. separatus</i>	2	4	6
<i>A. kochi</i>	0	2	2
<i>A. roperi</i>	0	1	1
<i>A. brevipalpis</i>	0	1	1
<i>A. montanus</i>	0	1	1
Total ...	130	180	312

*includes *A. tesselatus*, *A. kochi*, *A. "hyrcanus"*, *A. maculatus*, *A. separatus*, *A. ludlowi*, *A. montanus*, and *A. baezei*.

Annex III—(Contd.)

It is believed that while daytime biting by *A. barbirostris* and *A. letifer* is not unusual in parts of the First, Second, Third, and Fourth Divisions, both species are relatively rare and do not play a major role in malaria transmission.

Dissections

Dissections for gland and gut infections, and of ovaries for the parity rate by Detinova's method, were carried out. No gland and gut infections were found in 2,309 *A. barbirostris*, 78 *A. leucosphyrus*, 52 *A. balabacensis*, 491 *A. letifer* and 30 *A. baezai*.

Ovary dissections are summarised below:—

<i>Species</i>	<i>Total</i>	<i>Parous</i>	<i>Nulliparous</i>	<i>% Parous</i>
<i>A. barbirostris</i> ...	2,035	622	1,413	30.5
<i>A. leucosphyrus</i> ...	71	12	59	16.9
<i>A. balabacensis</i> ...	45	21	24	46.6
<i>A. letifer</i>	506	89	417	17.6
<i>A. baezai</i>	29	11	18	37.9

Larval collections

Random larval surveys were done at most localities visited for night captures. Larvae of eleven species were taken.

Training of investigators

During the period July-September, a course for investigators from all Divisions was held in the First Division under the WHO Entomologist attached to the Project and the WHO Regional Entomologist. The Regional Entomologist conducted an advanced course of training for the last ten days of the course. The advanced course was attended by two technicians from North Borneo and the Government Entomological Technician attached to the Project.

Special entomological investigation

A special investigation was carried out in the Padawan area of the First Division towards the end of the year to investigate the role of *A. barbirostris* as a vector there. The investigation will be continued during the early part of 1962, when the results obtained will be assessed.

TUBERCULOSIS IN SARAWAK — 1961

I. INTRODUCTION

Tuberculosis is one of the commonest diseases affecting the people of Sarawak. In the past treatment was possible only for those who voluntarily attended a hospital, clinic, or dispensary, and no scheme existed whereby a methodical search was made for those suffering from the disease. Returns submitted yearly thus gave no indication of the true extent of tuberculosis in Sarawak. In 1960 the Sarawak Tuberculosis Control Project was approved, and the work covered by the project during 1961 is now described.

The project is financed from Sarawak Government and Colonial Development and Welfare Funds. The Colombo Plan Authorities also provide substantial assistance in the form of drugs, and equipment and by the secondment of a Tuberculosis Nursing Sister and a Radiographer. In addition advice on the project is received from a Colombo Plan Adviser on Tuberculosis, who pays routine visits to Sarawak.

The programme for the control of the disease in Sarawak has been divided into phases, and these are now described briefly:—

- (i) The training of staff was started in 1960 and was called the "hidden" phase of the project. It formed part of the first phase of operations, and the first batch of twenty assistant health visitors was recruited and trained.
- (ii) The programme of control proper commenced in March, 1961, and this constituted the active part of the first phase. Before this was put into effect, a visit was paid by the Colombo Plan Adviser, in January, and a scheme of operations was drawn up.

It must be emphasised that the project is a long term one involving a number of years of careful planning as it moves from phase to phase i.e. is extended to include all the urban and rural areas of Sarawak.

II. PROGRAMME IN SCHOOLS DURING 1961

The active phase of the project commenced with the tuberculin testing of all school children, and the vaccination with B.C.G. of all negative reactors. Unfortunately activities were interrupted by the cholera epidemic during the months July to October when most of the project staff were diverted to man special cholera vaccination centres.

(1) *Tuberculin testing*

As many school children as possible were tested with P.P.D. using the Mantoux method, to see whether they possessed any resistance to the disease. The testing dose is 10 T.U., and the reaction is read after 72 hours. Reactions below 5 mms. in diameter were considered negative. Reactions 5 to 10 mms. in diameter were considered positive, while those above 10 mms. in diameter

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were considered to be "florid" positive. A summary of the results is given below—

Number of school children tuberculin tested	— 12,277
Number of school children absent when test read	— 40
Number of school children negative	— 5,754
Number of school children positive	— 6,843

Positive percentage rate by age groups—

5 years	17.2%
6 years	25.0%
7 years	41.6%
10 years	51.6%
12 years	61.8%
15 years	74.2%
18 years	85.4%

(2) B.C.G. vaccination

As stated already, all negative reactors were given protection by vaccination with B.C.G. A total of 5,754 school children received this protection.

(3) Mass miniature radiography

The project is equipped with two 70 mm. Odelca camera units. Those children showing a positive tuberculin reaction were X-rayed to aid further investigation. Figures for those X-rayed are now shown—

Number of school children X-rayed	— 6,843
Number of children on further investigation found to be suffering from pulmonary tuberculosis	— 47

The diagnosis of infectious cases of the disease was made by carrying out sputum examinations.

(4) Chemotherapy i.e. treatment with drugs was carried out in three ways—

(i) Only those cases who were acutely ill were admitted to hospital and placed on a three drugs regime of treatment involving the use of Streptomycin, P.A.S., and I.N.A.H. As soon as the acute symptomatology had subsided, the patient was discharged from hospital and placed on a two drug regime of domiciliary treatment.

(ii) Two drug therapy was carried out using P.A.S. and I.N.A.H. It was employed as long as the case was infectious.

(iii) One drug therapy using I.N.A.H. was used for all infectious cases of disease who became non-infectious as determined by sputum examinations. (I.N.A.H. was also used as a method of chemoprophylaxis for all child contacts of an infectious case.)

III. OTHER ASPECTS OF THE PROGRAMME DURING 1961

- (1) B.C.G. vaccination was extended to as many new born babies as possible in the division. There were 2,905 births registered in the Kuching General Hospital, and of this number 2,638 babies were vaccinated. In Maternal and Child Health Clinics, a further 3,986 babies were also vaccinated, giving a total of 6,624 babies protected in the First Division.
- (2) A survey was carried out in two known areas with a high density of population in Kuching. A summary of the findings follows—

	<i>China Street</i>	<i>Bishopgate Street</i>
Inhabitants	690	191
Previously attended Chest Clinic	283	94
X-rayed	363	86
Refused investigation	44	8
New cases of pulmonary tuberculosis diagnosed	16	3

- (3) A survey was also carried out among food-handlers in Kuching. The results may be summarised as follows—

Total number of food-handlers examined	— 1,042
Total number of new cases of pulmonary tuberculosis	— 54
Total number of old cases of pulmonary tuberculosis	— 19
Total number of cases for further investigation	— 128
Total number of licences withheld	— 33

IV. ITEMS OF SPECIAL INTEREST

- (1) Colombo Plan drugs, supplies, and equipment have been received, and it has been found necessary to alter the rate of supply for some items for the project because consumption has been less than was anticipated.
- (2) Minor alterations have been carried out in the Chest Clinic in Kuching to facilitate easier handling of the large numbers of persons attending.
- (3) The A.T.A.S. Convalescent home is now administered by the Medical Department, and is used as a home for the chronic infectious case who is resistant to treatment.
- (4) The training of staff continued during the year. Thirteen assistant health visitors were recruited from Sibu and commenced training in September. Also two microscopists were recruited and given a course of training before starting work in the laboratory on sputum examinations. By the end of the year arrangements had been completed to recruit and train two X-ray technicians, one of whom is from Sibu.

V. SUMMARY OF OTHER ROUTINE ACTIVITIES IN DIVISIONS

As explained already, the Tuberculosis Control Project operates in the Kuching area of the First Division only. However persons continue to travel to

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Kuching from the rural areas of the division, and attend the A.T.A.S. Chest Clinic for investigation and treatment.

In other divisions also, routine investigation and treatment still continue and acutely ill cases are admitted to hospital for treatment in the tuberculosis wards of hospitals. Cases not seriously ill are given domiciliary treatment. Also B.C.G. vaccination of babies is carried out wherever possible. Some figures are available for the above activities and these are now provided—

First Division

Number of persons tuberculin tested	—	2,856
Number of persons negative	—	1,283
Number of persons positive	—	1,387
Number of persons absent when test read	—	186
Number of persons X-rayed	—	8,872
Number of sputa examined	—	10,499
Number of new cases of pulmonary tuberculosis diagnosed	—	758

Second Division

Number of persons X-rayed	—	2,786
Number of sputa examined	—	3,156
Number of new cases of pulmonary tuberculosis diagnosed	—	154

Third Division

Number of persons X-rayed in Hospital	—	7,316
Number of persons X-rayed in Chest Clinic	—	5,194
Number of sputa examined	—	6,180
Number of new cases of pulmonary tuberculosis diagnosed	—	387

Fourth and Fifth Divisions

Number of persons X-rayed	—	3,356
Number of sputa examined	—	5,311
Number of new cases of pulmonary tuberculosis diagnosed	—	972



